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Abstract

The purpose of this report is to assist vendors in identifying the nature of the opportunity for wide area network (WAN) or network management outsourcing. It discusses the suitability of organisations' present wide area networks to meet their emerging business needs and the ability of organisations to develop and support their wide area networks in-house. In addition, the report analyses users' attitudes towards WAN outsourcing, identifies key vendor characteristics, and discusses the relationship of WAN outsourcing to other IT infrastructure management outsourcing services.

One of the principal challenges faced by outsourcing vendors is the need to develop the capability to manage organisations' entire client/server infrastructures. A number of vendors have taken the first step in this direction by beginning to assemble the infrastructure for remote management of servers and routers.

However, vendors now need to complement these capabilities with more extensive wide area network management offerings. Organisations are placing a growing emphasis on communication between local area networks, both within the enterprise and externally with their clients and suppliers. In addition, there are pressures on organisations to communicate using new types of media. Consequently, organisations' wide area networks are becoming one of the principal limiting factors in their application of information technology, creating opportunities in this area for outsourcing vendors.

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I

Introduction

A

Scope and Objectives

Organisations have outsourced elements of their wide area networks for some time. Indeed, many organisations that have outsourced mainframe datacentres have also outsourced related communications facilities. However, this type of activity remains very much legacy outsourcing and comparatively little network outsourcing has taken place with the aim of supporting advanced client/server architectures.

However, this must change over the next few years. Many organisations are now beginning to implement client/server architectures based around large numbers of site LANs. One of the keys to successful implementation of this style of IT infrastructure is advanced wide area network (WAN) technology. The lack of a suitable WAN architecture now threatens to be one of the principal inhibitors to organisations' ability to fully support their business goals with information technology. In particular, many organisations wish to use advanced technologies such as multimedia within their own organisations and to communicate with their customers and suppliers. This will necessitate radical changes to many organisations' current WANs.

One approach to solving this widespread need for major change with its associated high levels of investment is wide area network outsourcing.

This report analyses the nature of the opportunity for wide area network outsourcing by identifying:

- The level of suitability of organisations' wide area networks to meet their emerging business needs
- The impact that anticipated changes in network technology and architecture will have on the ability of organisations to develop and support their wide area networks in-house

- The attitudes of senior executives and IT managers towards wide area network outsourcing
- The extent to which the decision to outsource the wide area network is linked to the outsourcing of the wider IT infrastructure
- The key vendor selection criteria for wide area network outsourcing
- Current perceptions of the capability of a range of potential wide area network outsourcing vendors.

Wide area network outsourcing can take place either as a standalone network management service or as a component of a wider systems operations service.

Outsourcing is defined by INPUT as follows:

Outsourcing is a long-term relationship (greater than one year) between a client and vendor in which the client delegates all, or a major portion, of an operation or function to the vendor. The operation or function may be solely Information Systems Outsourcing-based, or merely include Information Systems Outsourcing as a prominent component of the operation (at least 30% of the budget).

The critical components defining an outsourcing service are:

- Delegating an identifiable area of the operation to a vendor
- Single-vendor responsibility for performing that delegated function
- Intended long-term relationship between the client and vendor
- Contract term of at least one year
- Client's intent is not to perform this function with internal resources
- The contract may include non-Information Systems Outsourcing activities, but Information Systems Outsourcing must be an integral part of the contract
- Outsourcing is a collection of services integrated under a single, long-term contract one vendor being responsible for its operation and management.

Business Operations Outsourcing (also known as, Business Outsourcing or Functional Outsourcing) is a relationship in which one vendor is responsible for performing an entire business/operations function including the Information Systems Outsourcing that supports it. The Information Systems Outsourcing content of such a contract must be at least 30% of the total annual expenditure in order for INPUT to include it in the Business Operations Outsourcing market.

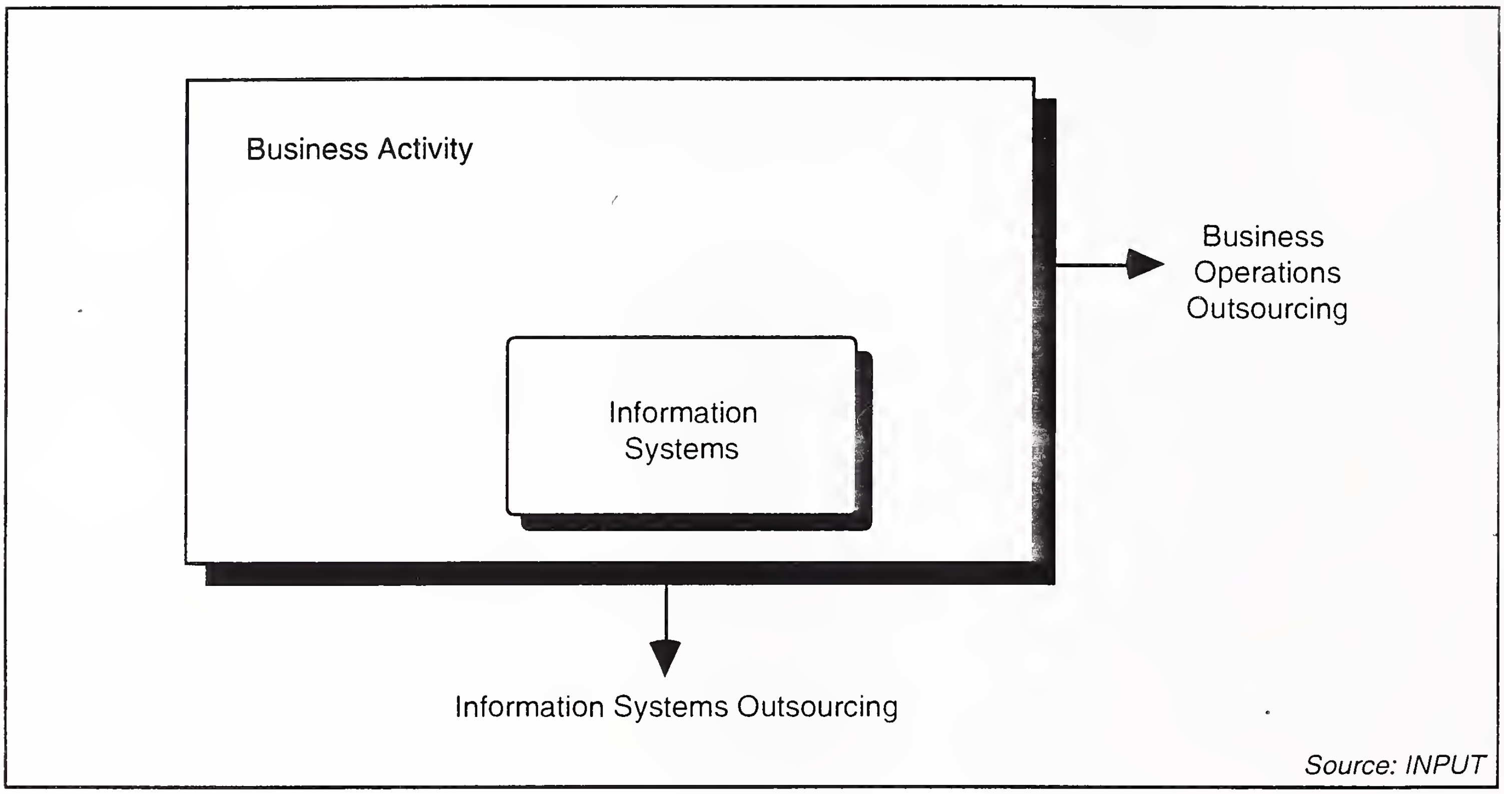
Information Systems (IS) Outsourcing can be viewed as a component of the Business Operations Outsourcing market (i.e., Information Systems Outsourcing is a business/operations function, see Exhibit I-1). However, in order to distinguish between outsourcing contracts that are solely IS and those that include IS as well as other functions, IS Outsourcing will be segregated from Business Operations Outsourcing. Information Systems Outsourcing is divided into four service components as shown in Exhibit I-2.

- *Systems Operations* outsourcing describes a relationship in which a vendor is responsible for managing and operating a client's "computer system"/datacentre (*Platform Systems Operations*) or developing and/or maintaining a client's application as well as performing Platform Operations for those applications (Applications Systems Operations).
- *Desktop Services* is a relationship in which a vendor assumes responsibility for the deployment, maintenance and connectivity of personal computers, workstations, client/server networks and LAN systems in the client organisation. To be considered as Desktop Services outsourcing, a contract must include a significant number of the individual services listed below.
    - Software Product Supply
    - Equipment Supply
    - Equipment/Software Installation
    - Equipment Maintenance
    - LAN Installation and Expansion
    - LAN Management
    - Network Interface Management
    - Client/Server Support
    - Logistics Management
    - User Support
    - Help Desk Functions
    - User Training and Education

- *Network Management* outsourcing is a relationship in which a vendor assumes full responsibility for operating and managing the client's data telecommunications systems. This may also include the voice, image and video telecommunications components.
- *Application Management* is a relationship in which the vendor has full responsibility for developing and maintaining all of the application or function.

Exhibit I-1

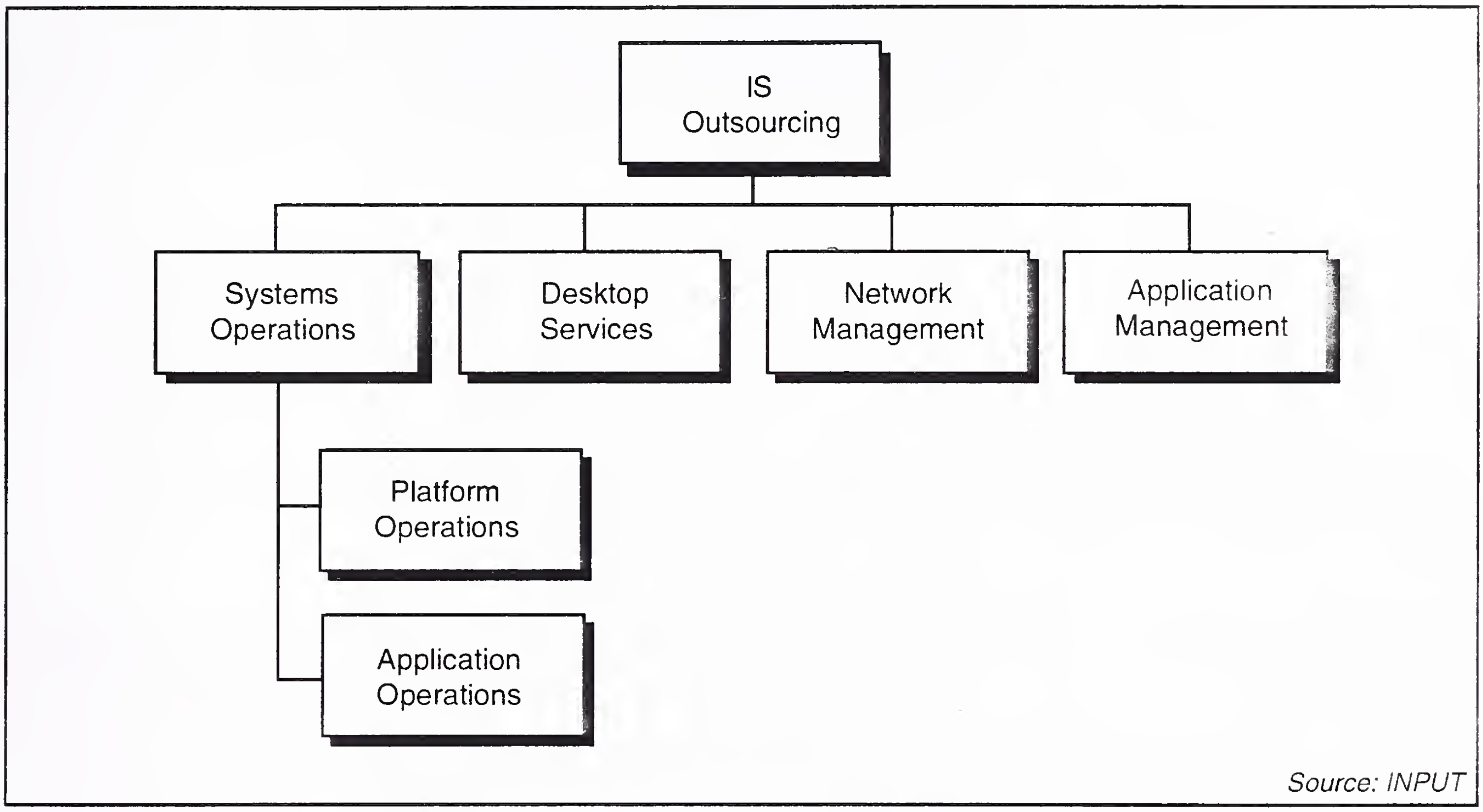
Business Operations Outsourcing


Business Activity
Information Systems
Business Operations Outsourcing
Information Systems Outsourcing

Source: INPUT

Exhibit I-2

Information Systems (IS) Outsourcing Service Categories



Source: INPUT

The above definitions focus on the services covered in the outsourcing contract. For example, an Application Operations contract can include all facets of Information Systems Outsourcing (platform operations, desktop services, network and application management). The key to INPUT's market definition is the service contract). If an airline, for example, wishes to outsource its reservations operation which includes not only the network, but also its infrastructure, applications and the people running the operation, this is a Business Operations Outsourcing contract. Exhibit I-3 shows the service components that may be included in each outsourcing service category.

Exhibit I-3

Outsourcing Service Components

Component	Platform Ops	Appl. Ops.	Desktop Services	Network Mgt.	Appl. Mgt.	Business Ops.
Project/Contract Management	X	X	X	X	X	X
Datacentre Management	X	X				X
Client\Server Operations	X	X	X			X
Equipment Maintenance	X	X	X			X
System Software Maintenance	X	X	X	X		X
Application Software Maintenance		X	X		X	X
Application Development		X			X	X
LAN Management		X	X	X		X
WAN/MAN Management		X		X		X
Transaction Processing Services		X				X
Other Professional Services		X	X		X	X
Business Process Operations						X

Source: INPUT

The largest, most visible contracts awarded over the past year have been typically Application Operation outsourcing contracts since they, at least, included management of the infrastructure (datacentres and various computing platforms) and the support of some of the legacy applications. In the past, most Application and Platform Operation Outsourcing contracts included network management, but recent contracts have also included desktop services.

The following are not included in INPUT's world of outsourcing are the following:

- Project-based services are not considered as part of outsourcing. Thus, Systems Integration and application development projects are not included.
- Services that were never intended to be performed internally. Maintenance-only services do not constitute an outsourcing function by themselves. However, responsibility for hardware and software maintenance is inherent in most outsourcing contracts.
- Processing services contracts of less than one year.
- Voice-only network management.
- Business operations with minimal information systems content. The outsourcing of the marketing communication function to an outside agency is not covered by INPUT's analysis. A function or business operation must have at least 30% of its budget attributed to information technology, in order to be included.

B

Methodology

This report is based on interviews with representatives of 88 organisations. The interviews were spread across organisations in France, Germany and the UK and between IT managers and senior non-IT executives, such as chief financial officers, as shown in Exhibit I-4.

Exhibit I-4

Interview Profile by Country

Country	IT Managers	Senior Executives	Total number of interviews
France	17	11	28
Germany	20	10	30
UK	23	7	30
Total	60	28	88

Source: INPUT

All interviews were carried out with organisations with annual revenues in excess of $100 million.

C
Report Structure

Section II consists of the Executive Overview which is a summary of the key findings of the report.

Section III analyses the suitability of organisations' wide area networks to meet their business needs over the next three years. In particular, it evaluates:

- The main challenges facing organisations' use of wide area networks
- How organisations expect their wide area networks to change over the next three years
- The strengths and weaknesses of the wide area networks currently in use
- The pressures on in-house capability to develop and support their wide area networks.

Section IV analyses respondents' attitudes towards wide area network outsourcing. It evaluates:

- The principal perceived benefits of WAN outsourcing
- Which elements of WAN management are perceived as important to retain in-house
- The circumstances under which respondents would expect to outsource the operation and management of their wide area networks
- The extent to which organisations expect to outsource the operation and management of their wide area networks

Section V analyses respondents' attitudes towards the purchasing of WAN outsourcing services. In particular, it analyses:

- The type of vendor that organisations favour for outsourcing the operation and management of their wide area networks
- The extent to which organisations favour outsourcing the operation and management of their wide area networks either stand-alone or in combination with other IT infrastructure management services

- Perceived key vendor characteristics
- The perceived suitability of each of nine named outsourcing vendors.

D
Related Reports

Outsourcing Opportunities in Government-Europe, 1993-1998

Client Satisfaction with IT Outsourcing Services-Europe, 1993

Business Operations Outsourcing-Europe, 1993

Desktop Services Outsourcing-Europe, 1994

Information Systems Outsourcing Market—Europe, 1994-1999

Impact of Business Reengineering on Outsourcing-Europe, 1994

Identifying & Winning Outsourcing Opportunities - Europe, 1994

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II

Executive Overview

A

Pace of Change Drives WAN Outsourcing

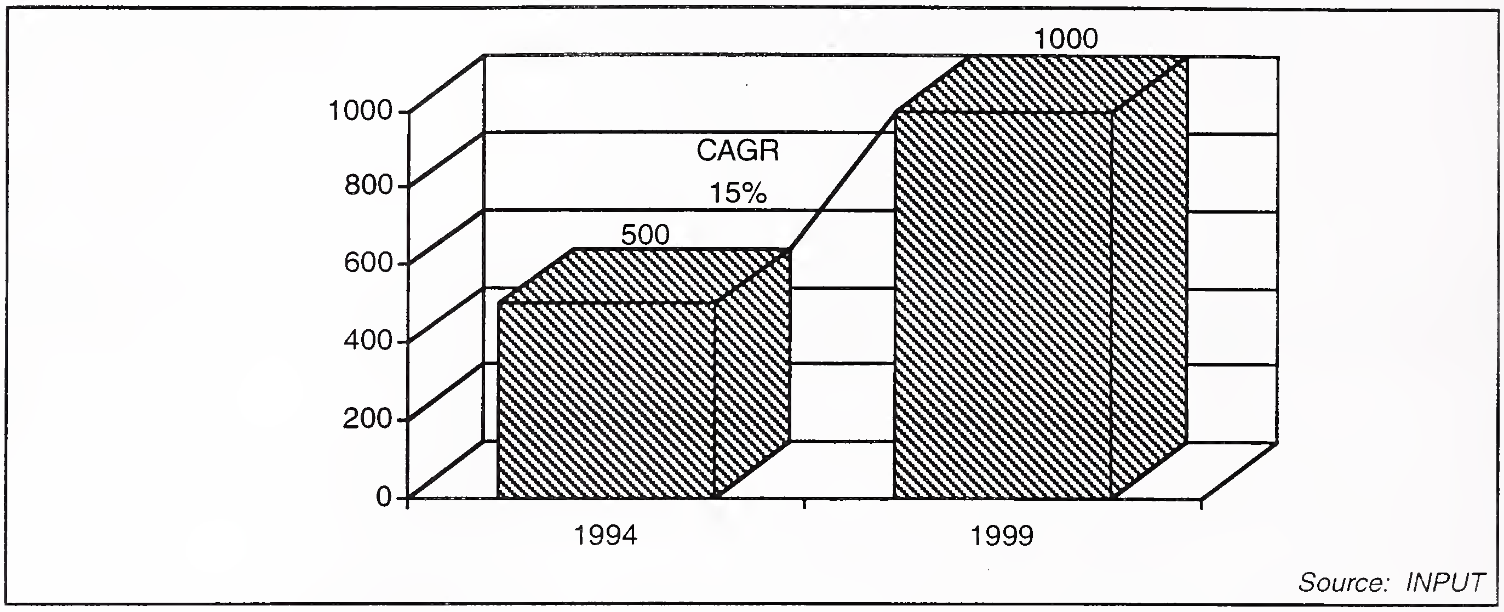
Much of the recent activity in the European outsourcing market has concerned vendors developing desktop services outsourcing capability. These services have been developed to address the difficulties that organisations are beginning to face in managing new technologies in the form of distributed local area networks (LANs). However, changing technology and business requirements are also beginning to have a major impact on the ability of organisations to manage their wide area networks (WANs).

In many ways, the forefront of technological change is now moving from the desktop to the wide area network. Many wide area networks will have to undergo fundamental changes over the next few years if they are to continue to play an effective part in their organisation's use of information technology. At present, many are ill-equipped to facilitate the use of the technology now being implemented at the desktop. As a result, existing wide area networks are potentially more of an impediment to the application of technology for business advantage over the next few years than are existing datacentres.

The scale of change required, and the consequent pressures on in-house service departments to implement change, are creating major opportunities for vendors offering wide area network outsourcing services in Europe over the next few years. Overall, approximately one-quarter of major European organisations expect to outsource their wide area network within three years. The resulting growth in WAN outsourcing, or network management, is forecast in Exhibit II-1, with a breakdown by country provided in Exhibit II-2.

Exhibit II-1

Network Management, Europe



Source: INPUT

Exhibit II-2

Network Management by Country

Country	Revenues ($m) 1994	Revenues ($m) 1999	CAGR(%)
France	140	310	17
UK	135	270	15
Germany	110	190	12
Rest of Europe	115	230	15

Source: INPUT

Expectations of outsourcing wide area networks are highest in France. While this expectation appears to be partly due to the continuing perception by French organisations of the need to avoid large investments, another factor apparently is the prominent position of France Télécom as a potential vendor of outsourcing services.

Organisations in Germany show the lowest level of propensity to adopt WAN outsourcing in the immediate future. The principal motivation for WAN outsourcing in Germany is the need to introduce technical expertise lacking in-house.

In the UK, there is also a high level of resistance to standalone WAN outsourcing since network management is perceived to be an integral part of the organisation's overall outsourcing strategy.

In order to take advantage of the emerging network management opportunity, vendors must:

- Demonstrate widespread geographic coverage
- Provide comprehensive operational support for client/server-based IT infrastructures
- Widen their service capabilities.

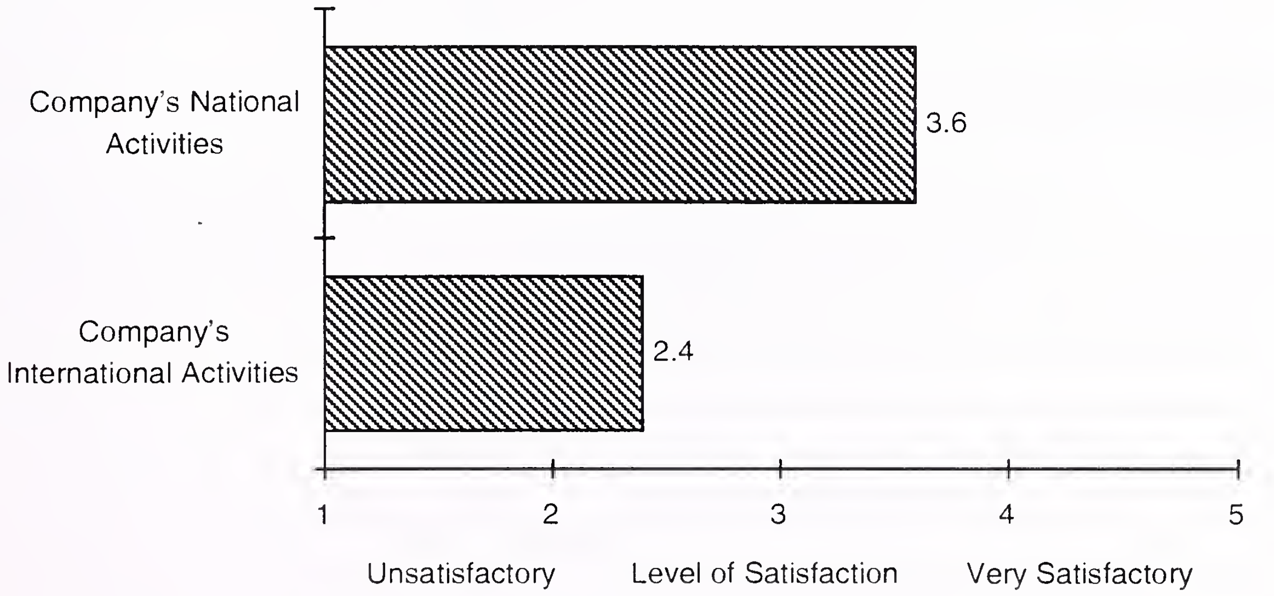
B

Improving Geographic Coverage

Exhibit II-3 lists the levels of satisfaction with the current geographic coverage of organisations' wide area networks.

Exhibit II-3

Quality of Current Geographic Coverage



Sample of 88 respondents. Standard error = 0.1

Source: INPUT

Overall, approximately 60% of respondents expressed a high level of satisfaction with their current WAN's ability to support the organisation's national activities. However, this is not a particularly high level of satisfaction and the level of satisfaction expressed by senior executives was lower than that of their IT managers. Senior executives typically expect their wide area networks to play a growing role in facilitating electronic trading with customers and suppliers and are not totally satisfied with the geographic coverage of their corporate data network to support these activities even within their principal national market.

The situation is even worse on a wider geographic basis. Representatives of less than 15% of organisations are highly satisfied with their wide area network's ability to support the organisation's international activities.

However, this situation still represents a significant challenge for vendors. In order to be able to offer an improved level of service, vendors need to be able to offer their clients comprehensive network coverage of the client's national market, since the largest part of an organisation's network traffic is likely to be within its country of origin, together with less concentrated, but extensive, international coverage.

Few vendors can currently offer this pattern of coverage. INPUT's network management survey in 1992 showed that organisations felt that vendors lacked the necessary international coverage. This perception does not appear to have changed significantly. Only 5% of respondents in the 1994 survey strongly perceived that outsourcing would assist them in improving the geographic coverage of their wide area networks.

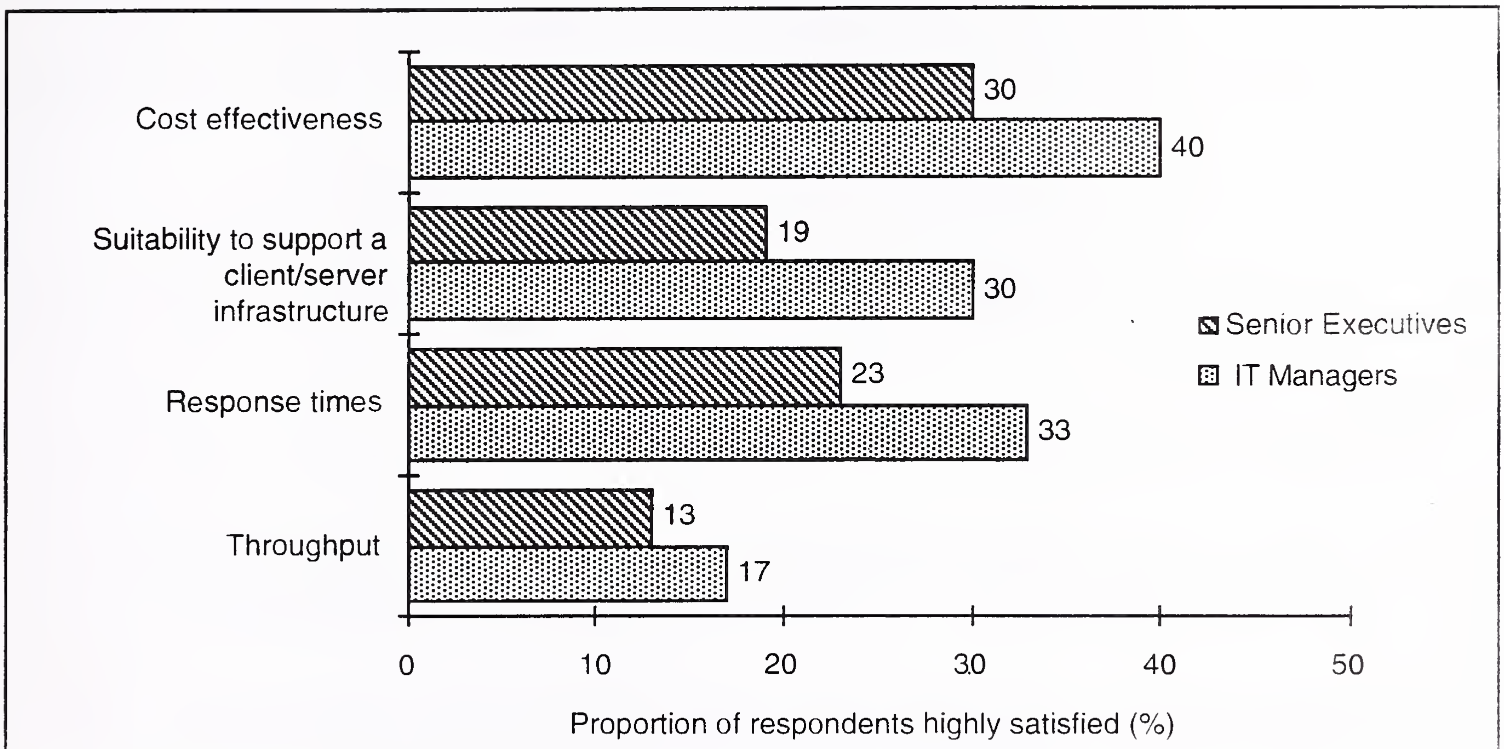
C

Supporting Client/Server Architectures

Exhibit II-4 shows the proportion of respondents who expressed a high level of satisfaction with their wide area network's ability to support changing business needs in terms of each of the listed attributes.

Exhibit II-4

Wide Area Network Weaknesses



Sample of 88 respondents. Standard error = 8%

Source: INPUT

Organisations typically expect their use of wide area networks to increase substantially over the next few years and current wide area networks are perceived to lack the capacity to meet this increase in demand. The increased usage of wide area networks will arise both from an increase in the number of users connected to the wide area network and from a change in the nature of the services used.

Firstly, organisations are trying to provide improved interoperability, both within the organisation and with external partners. Organisations are endeavouring to provide all their locations with access to the wide area network, regardless of location, with the goal of providing full user access to all systems, irrespective of location. This includes providing remote access for mobile users. In addition, senior executives are placing a growing emphasis on electronic trading which they see as a key means of enhancing the organisation's service delivery to its customers and partners.

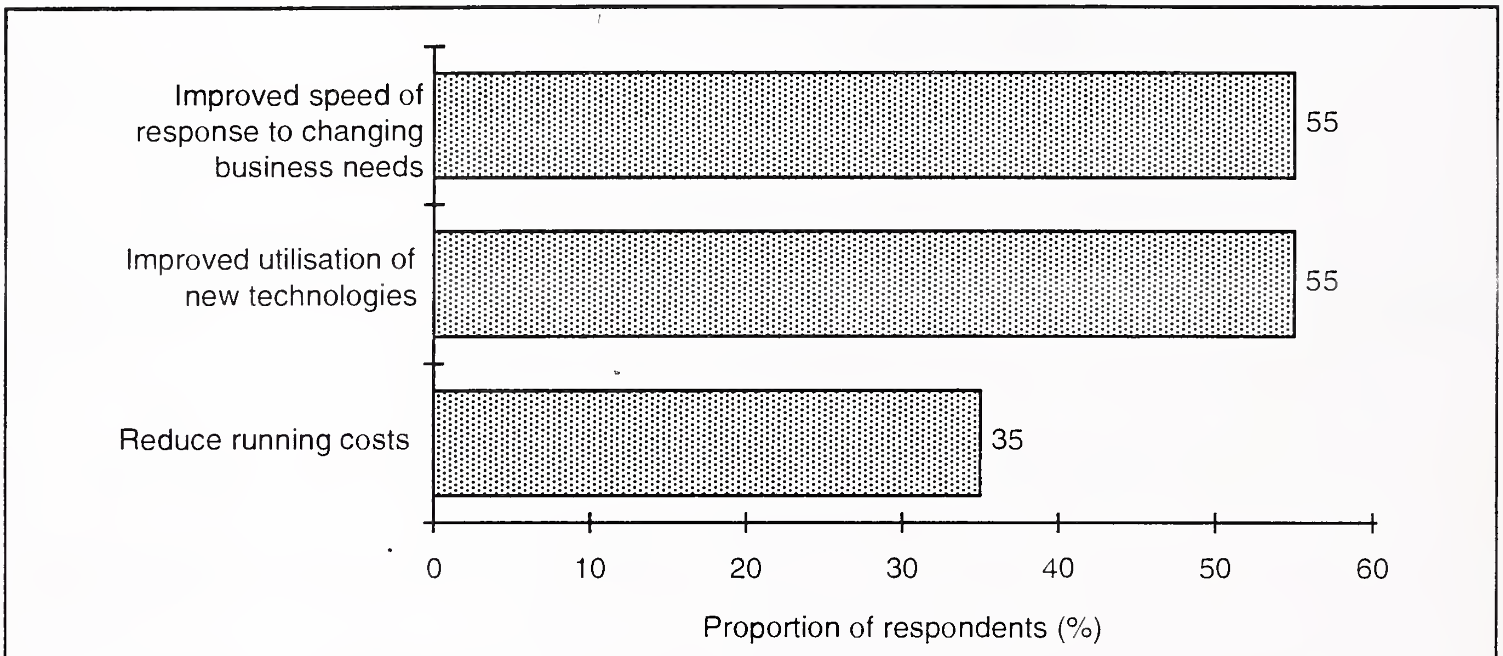
Secondly, many organisations now require their wide area network to support a client/server architecture. Organisations increasingly expect their future IT architecture to be based around a large number of site/departmental/workgroup LANs that need to be fully linked via wide area networks. Existing corporate data networks are commonly perceived to be inadequate to support this style of operation.

The combination of the need for change on this scale together with a perception of low cost-effectiveness creates a natural opportunity for outsourcing vendors. However, the vendors will themselves need to implement networks and network management centres that support this new mode of IT infrastructure.

Exhibit II-5 lists the proportion of respondents who strongly perceived that outsourcing would assist their organisation in achieving each of the benefits shown.

Exhibit II-5

Principal Benefits of WAN Outsourcing



Sample of 88 respondents. Standard error = 5% *Source: INPUT*

As is common in outsourcing surveys, cost savings is one of the leading benefits anticipated for WAN outsourcing. However, the more important role of WAN outsourcing is not to reduce the cost of operation of the current wide area network, but to assist organisations in changing the nature of their wide area networks.

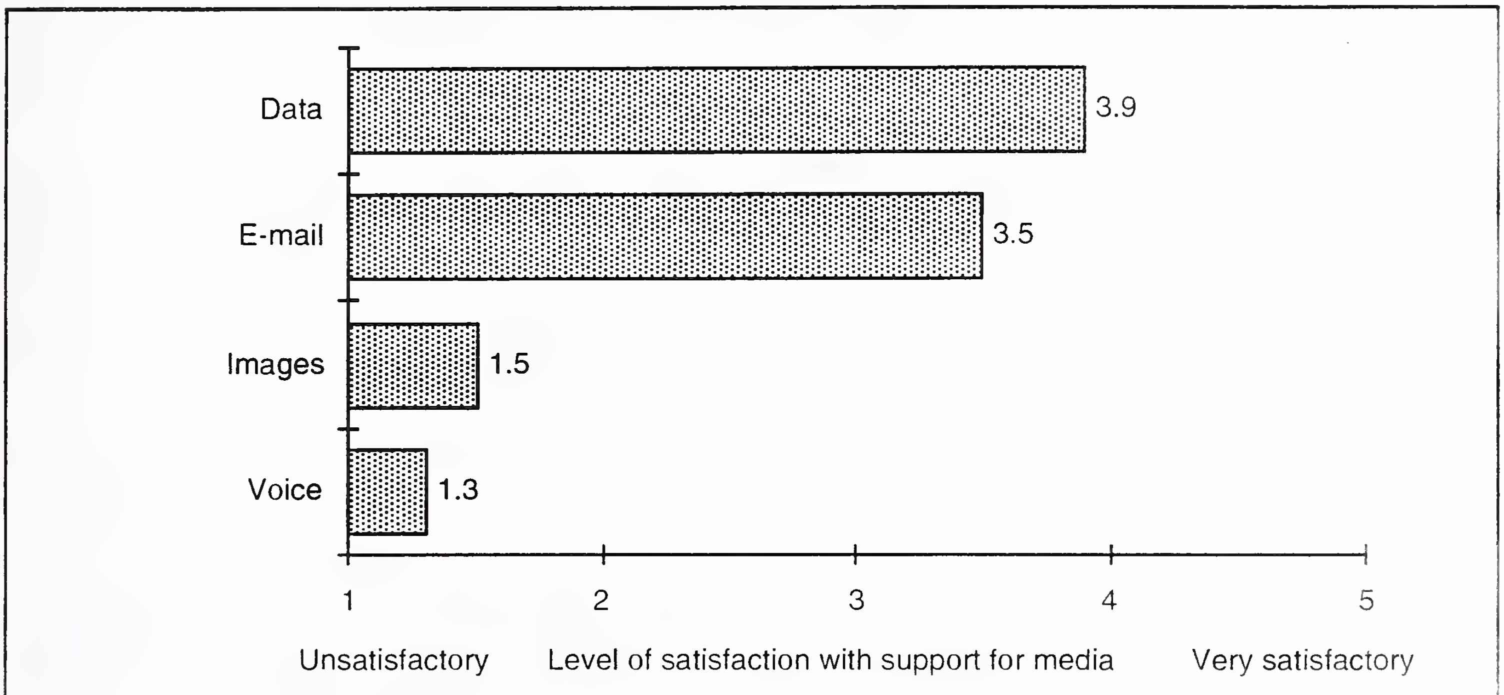
Accordingly vendors should stress their ability to take over the management of an existing network and upgrade its scope and performance so as to meet future business needs.

Organisations also require vendors to provide them with enhanced ability to communicate using new types of media.

Exhibit II-6 shows the level of satisfaction with the present wide area network's ability support various types of media.

Exhibit II-6

Quality of Multimedia Support



Sample of 88 respondents. Standard error = 0.1

Source: INPUT

The level of satisfaction with current data transmission capability and E-mail facilities appears to be comparatively high. Nonetheless, only two-thirds of senior executives expressed a high level of satisfaction with their current wide area network's capabilities in these areas.

Widespread support for image transmission is virtually non-existent within current corporate data networks. However, changing business needs are widely expected to produce a requirement for cost-effective multi-media transmission capability within the next three years. Many users now wish to go significantly beyond E-mail and be able to communicate via data, voice, fax and image on a desk-to-desk basis, both within their own organisations and with their suppliers and customers.

Organisations are also beginning to want to merge their voice transmission with their data networks.

D

Widening Service and Support Capabilities

Exhibit II-7 lists the key characteristics perceived to be needed by a vendor of WAN outsourcing services.

Exhibit II-7

Key Vendor Capabilities

Critical	Very Important	Important
National network	Image transmission	Total IT infrastructure management
Combined LAN/WAN management	Pan-European network	Global network

Source: INPUT

It is essential that the outsourcing vendor can offer the appropriate geographic coverage to mirror the client's requirements. The most important elements of this geographic coverage, in order of importance to European organisations, are:

- Extensive national coverage of the organisation's home market
- Coverage of the organisation's European markets
- Global coverage outside Europe.

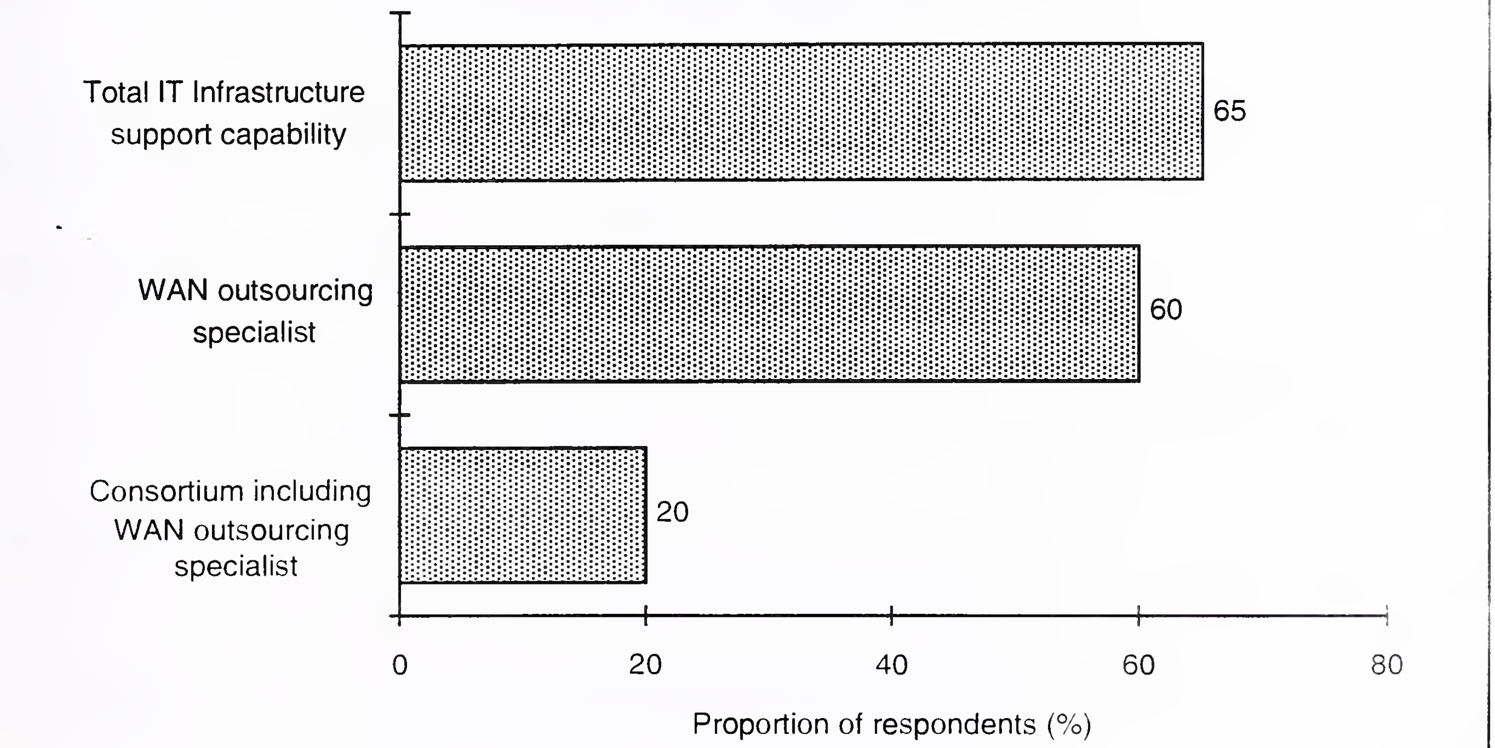
Vendors also need to offer a wider service than just WAN management. In particular, there is a very high level of demand for combined WAN and LAN management. As organisations adopt client/server architectures based around LANs, they do not wish to become involved in disputes between rival vendors disagreeing on whether the problem lies with the wide area network or the local area network.

Many organisations perceive wide area network outsourcing to be an integral component of their overall IT infrastructure outsourcing and do not wish to outsource their wide area network separately. This view is particularly common among senior executives. On the other hand, IT managers tend to be conscious of the need for specialist expertise and are more prepared than senior executives at present to use the services of a WAN outsourcing specialist.

Exhibit II-8 summarises the proportions of respondents who perceive that vendors with each of the types of capability listed are an appropriate choice for provision of WAN outsourcing services.

Exhibit II-8

Purchasing Style Favoured



Sample of 88 respondents. Standard error = 5% *Source: INPUT*

In the future, it is probable that organisations will increasingly tend to favour organisations with a total IT infrastructure management capability. Only a small minority of respondents perceived that using a consortium including a WAN outsourcing specialist was a very suitable way of purchasing WAN outsourcing services.

Accordingly, it is important that the PTTs and other vendors specialising solely in WAN-related services develop a wider outsourcing capability.

Exhibit II-9 lists the perceived suitability of a number of vendors as suppliers of WAN outsourcing services.

Exhibit II-9

Perceived Vendor Suitability

Vendor	Proportion of respondents rating highly (%)
IBM	40
EDS	35
Cap Gemini Sogeti	35
AT&T	30
France Télécom	25
BT	20
Digital	20
Deutsche Bundespost Telekom	15
Unisource	10

Source: INPUT

Overall, the major IT outsourcing vendors were rated more highly than the telecommunications specialists. This was only partly as a result of the leading IT outsourcing vendors' broader geographic acceptance compared to the national carriers. Indeed, France Télécom was the only PTT to receive the highest level of support for its WAN outsourcing capability in its home market. For example, higher proportions of respondents in Germany perceived IBM and EDS to be very suitable suppliers of WAN outsourcing services than they did Deutsche Bundespost Telekom. Similarly, higher proportions of respondents in the UK perceived Hoskyns, IBM and EDS to be very suitable suppliers of WAN outsourcing services than they did BT.

III

Enhancement of Wide Area Networks is Now Critical

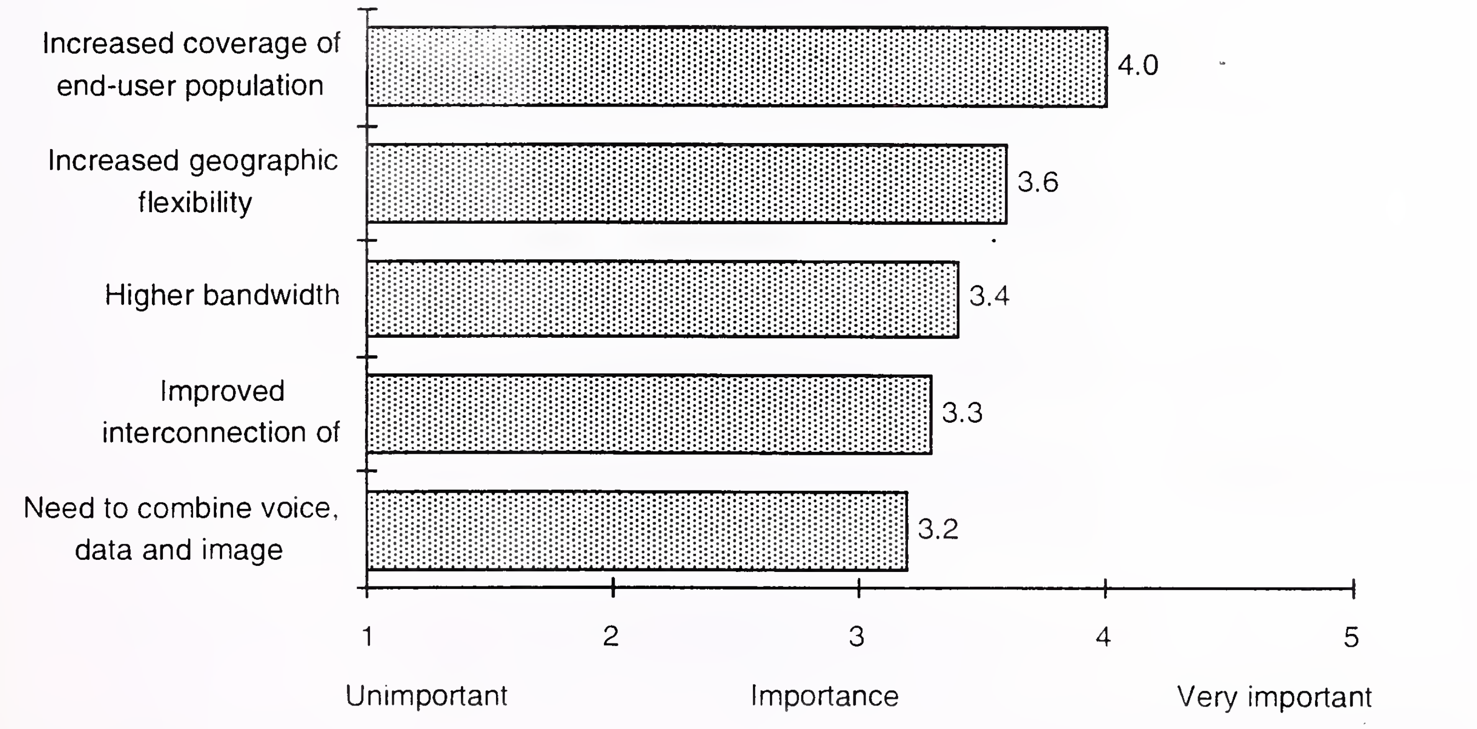
A

WAN Usage Expected to Increase Substantially

Exhibit III-1 indicates the level of importance that organisations attach to a number of potential challenges faced by their WANs over the next few years.

Exhibit III-1

WAN Challenges: Europe



Sample of 88 respondents. Standard error = 0.1

Source: INPUT

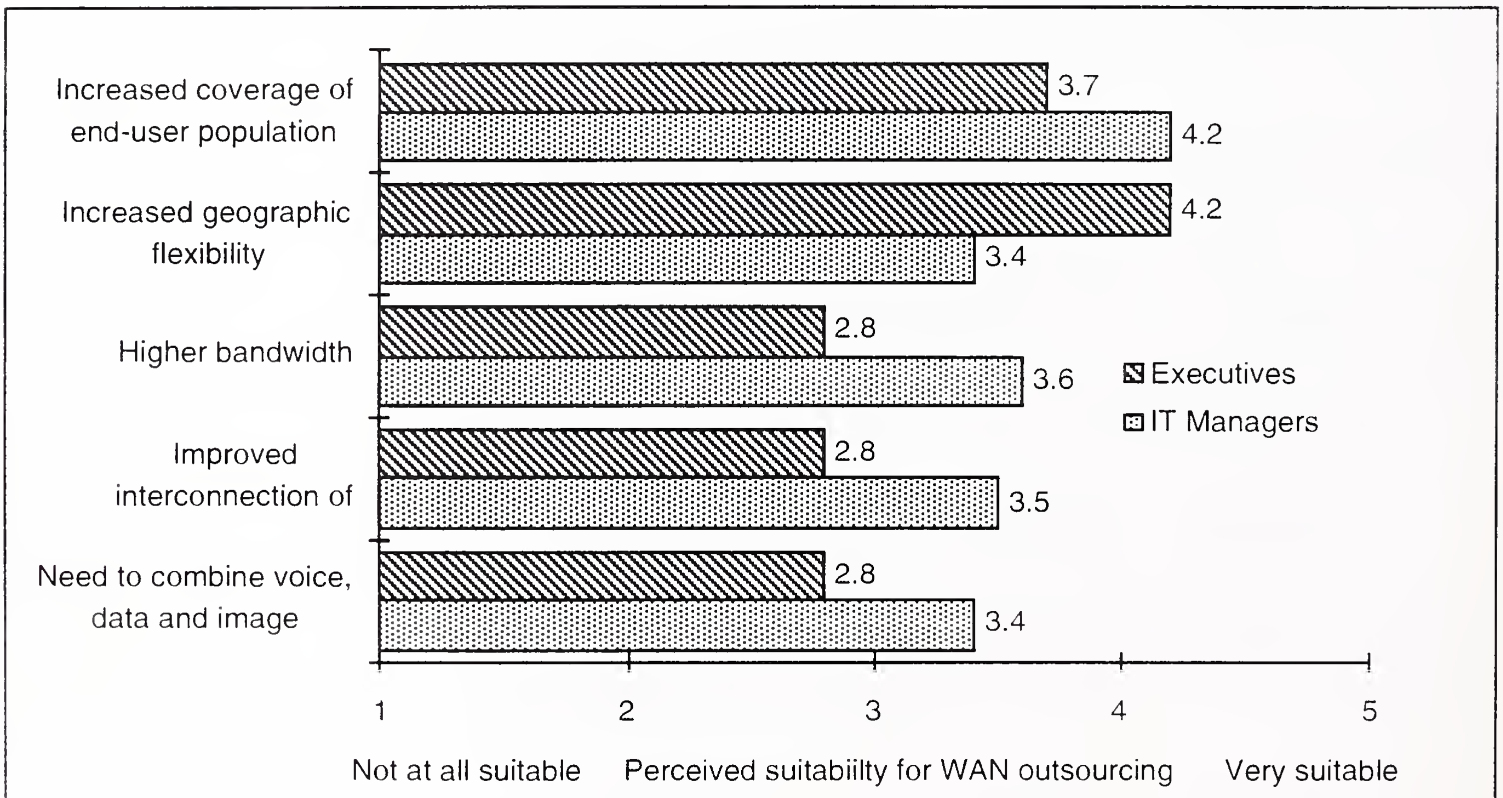
Organisations typically expect their use of WANs to increase significantly over the next few years. Many organisations are moving towards an IT architecture based on a large number of site LANs linked by the wide area network. Often there remains considerable work to be done to link all of an organisation's subsidiaries, factories, and branch offices into the corporate wide area network.

There is also considerable pressure on IT departments to make all IT services available to all users. At present, the emphasis is not so much on linking workgroups as on making all data servers accessible from anywhere within the organisation to provide users with access to the data they require.

Exhibit III-2 lists the differing perceptions of the importance of these challenges held by IT managers and senior executives.

Exhibit III-2

WAN Challenges: IT Manager & Senior Executive Perspectives



Sample of 88 respondents. Standard error = 0.2

Source: INPUT

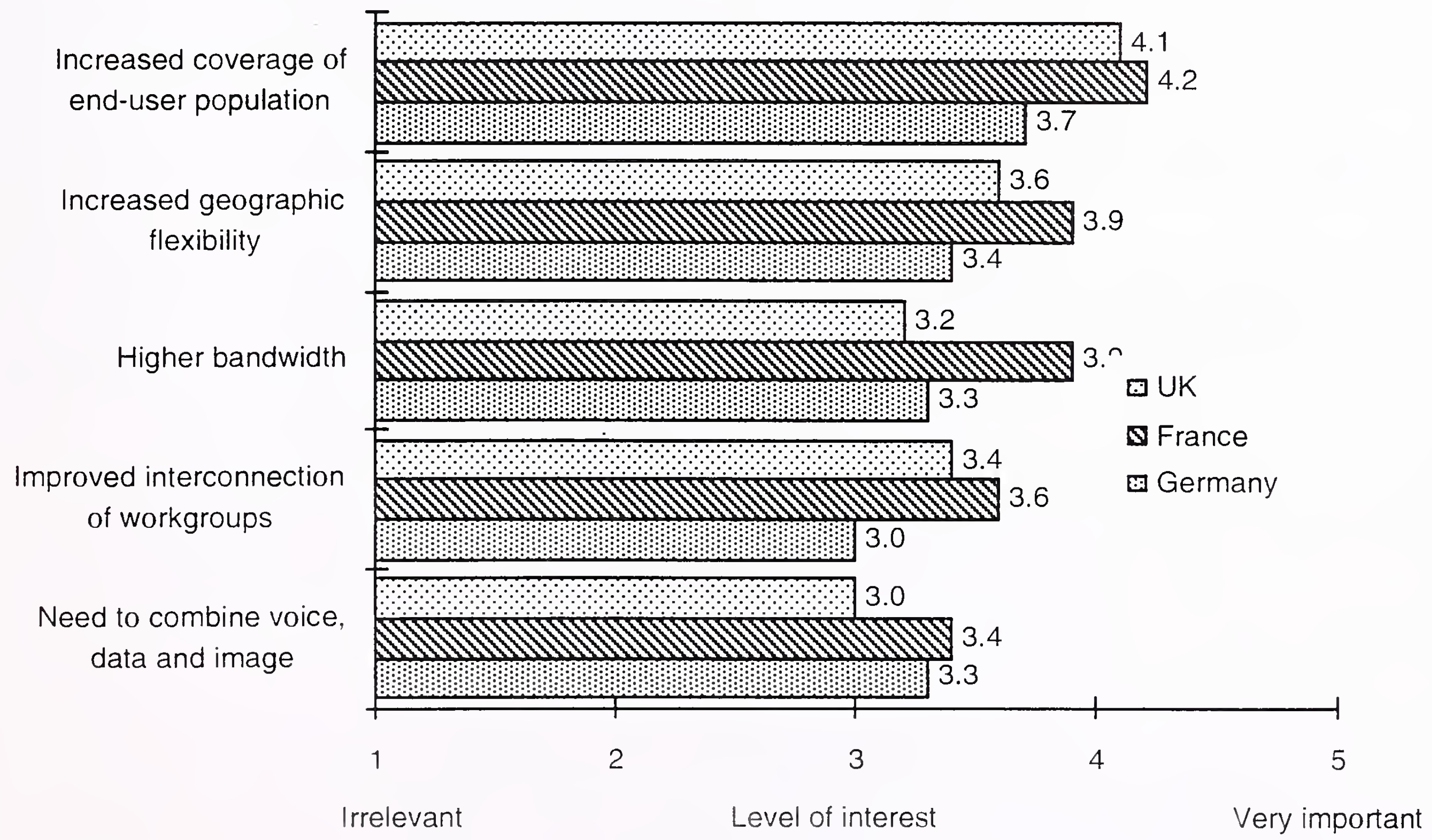
Senior executives are concerned with improving the degree of connectivity within their own organisations and are especially concerned with providing remote locations and mobile sales forces with access to the information they require. However, senior executives also take a more outward-facing perspective than their IT managers. Senior executives are very concerned with the need to improve their communications links with customers and suppliers to facilitate electronic commerce. In some industries, such as banking, senior executives perceive their organisation's ability to offer online services to their clients as critical to their future success.

Accordingly, senior executives tend to perceive the challenge in terms of improving the geographic scope of their networks, whereas IT managers tend to perceive the problem more in terms of establishing links between servers.

Exhibit III-2 lists the differing perceptions of the importance of these challenges within France, Germany and the UK.

Exhibit III-3

WAN Challenges: France, Germany & UK



Sample of 88 respondents. Standard error = 0.2 *Source: INPUT*

Overall, there is a high level of agreement on the challenges faced by corporate WANs in each of these countries. However, the need for change is perceived to be highest in France where over 60% of respondents perceived a strong need to increase the geographic flexibility and bandwidth of their wide area networks.

Exhibit III-4 summarises the principal ways in which organisations expect their wide area networks to change over the next three years. Because of the overlap and dependencies between categories, this table should not be used to draw strict comparisons between countries.

Exhibit III-4

Principal WAN Changes: 1994-1997

Expected Change (number of mentions)	France	Germany	UK	Total
Increased usage/traffic	3	10	6	19
Greater sophistication/range of data types	3	7	9	19
Increased LAN interconnection	—	3	10	13
Greater interoperability/accessibility	4	6	—	10
Increased capacity	2	8	—	10
Increased number of users	2	—	5	7
More electronic trading	2	—	4	6
Increased usage of external information providers	2	2	1	5

Source: INPUT

Both IT managers and senior executives anticipate their wide area networks undergoing major change during the next three years. Only a very small minority of respondents stated that they did not expect their WANs to change significantly over this period.

Firstly, organisations expect the usage of their networks to increase substantially. Much of this increase is expected to derive from the increase in the number of internal users and the growing volume of traffic per user. However, many organisations also anticipate a large increase in their use of electronic trading with customers and suppliers, and the need for access to external information providers is growing in importance.

Secondly the nature of communications is expected to change fundamentally. Access will no longer be based around the concept of a terminal accessing a central host, instead organisations require their users to have potential access to all the servers within the organisation and to be able increasingly to communicate on a department-to-department or user-to-user basis.

Organisations also expect the type of data transmitted to change. In particular, many organisations want to begin to transmit multimedia data within the next three years. The following are examples of respondents' expectations of the combinations of data types that will soon be carried by their WANs:

- CAD and image
- Voice, data, image and E-mail
- Video, text, TV and other media
- Image and desktop conferencing
- Voice and image.

Overall, there are often high expectations that the corporate WAN will be able to transmit image at an acceptable speed and acceptable cost in the near future. As a result, some organisations are expecting to fundamentally upgrade the technology on which their corporate data networks are based.

Respondents were asked what impact changing business needs would have on their wide area network over the next three years. The overwhelming response was that the performance of the WAN would need to improve to enable it to carry increased volumes of data with improved response times.

In addition, the need for improved inter-connectivity was again strongly mentioned. Other considerations not identified earlier were:

- The need for easier network accessibility
- Greater availability of network access.

Many managers perceive that achieving access through wide area networks is overly complex and that the user interface needs to be simplified. Senior managers place considerable emphasis on the role of the WAN in facilitating trading and information-sharing with external partners. In these instances, easy access to the network is an important element in the organisation's own business service.

There was an expectation that the network should facilitate availability of information within the organisation. One respondent expected that the network should deliver global access to information systems on a 24-hour basis.

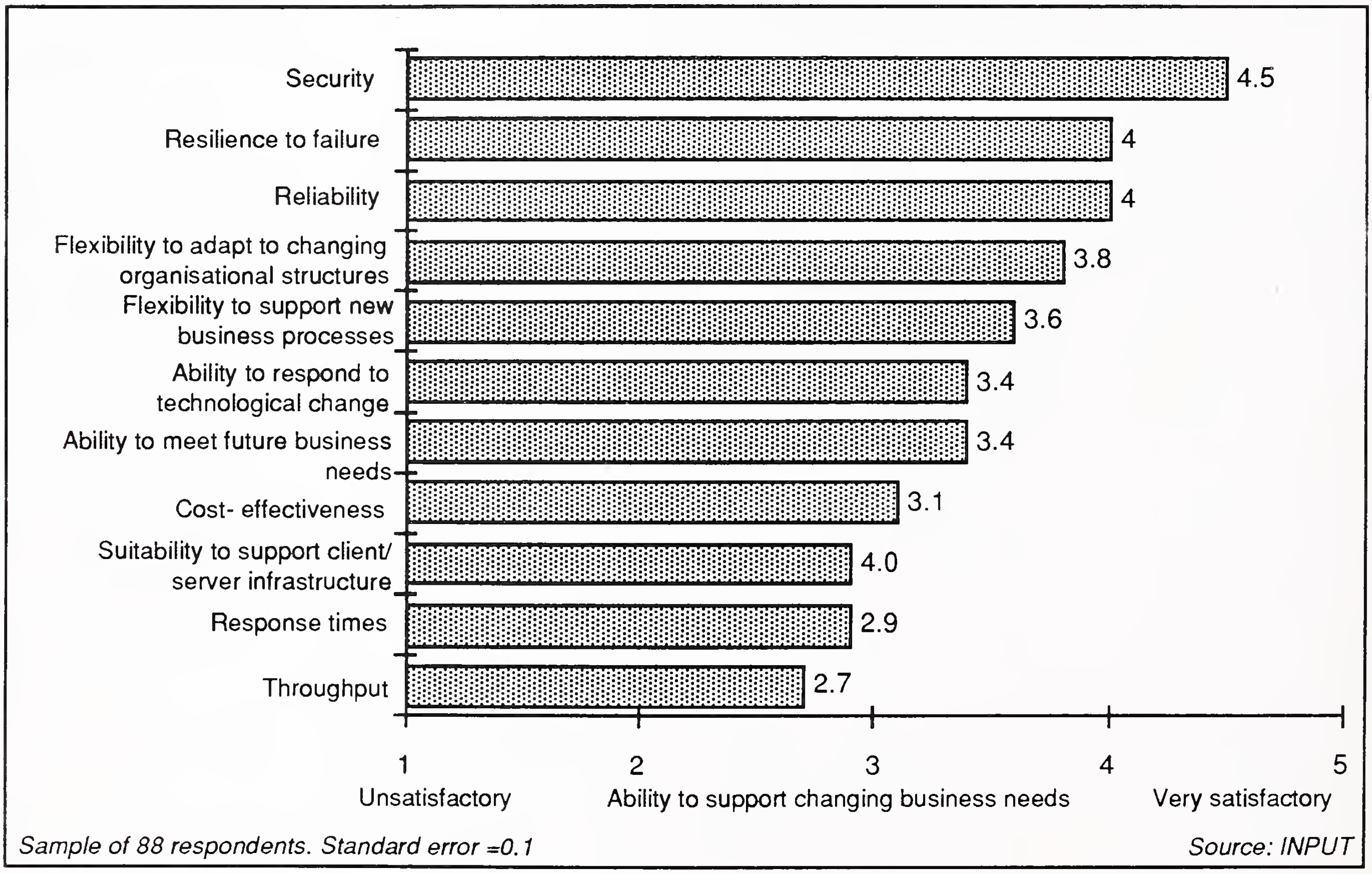
B

Present WANs are Inadequate to Meet Future Needs

Exhibit III-5 indicates the perceived ability of organisations' current WANs to support their own changing business needs in terms of a number of potential requirements.

Exhibit III-5

Ability of WAN to Support Changing Business Needs



Sample of 88 respondents. Standard error =0.1

Source: INPUT

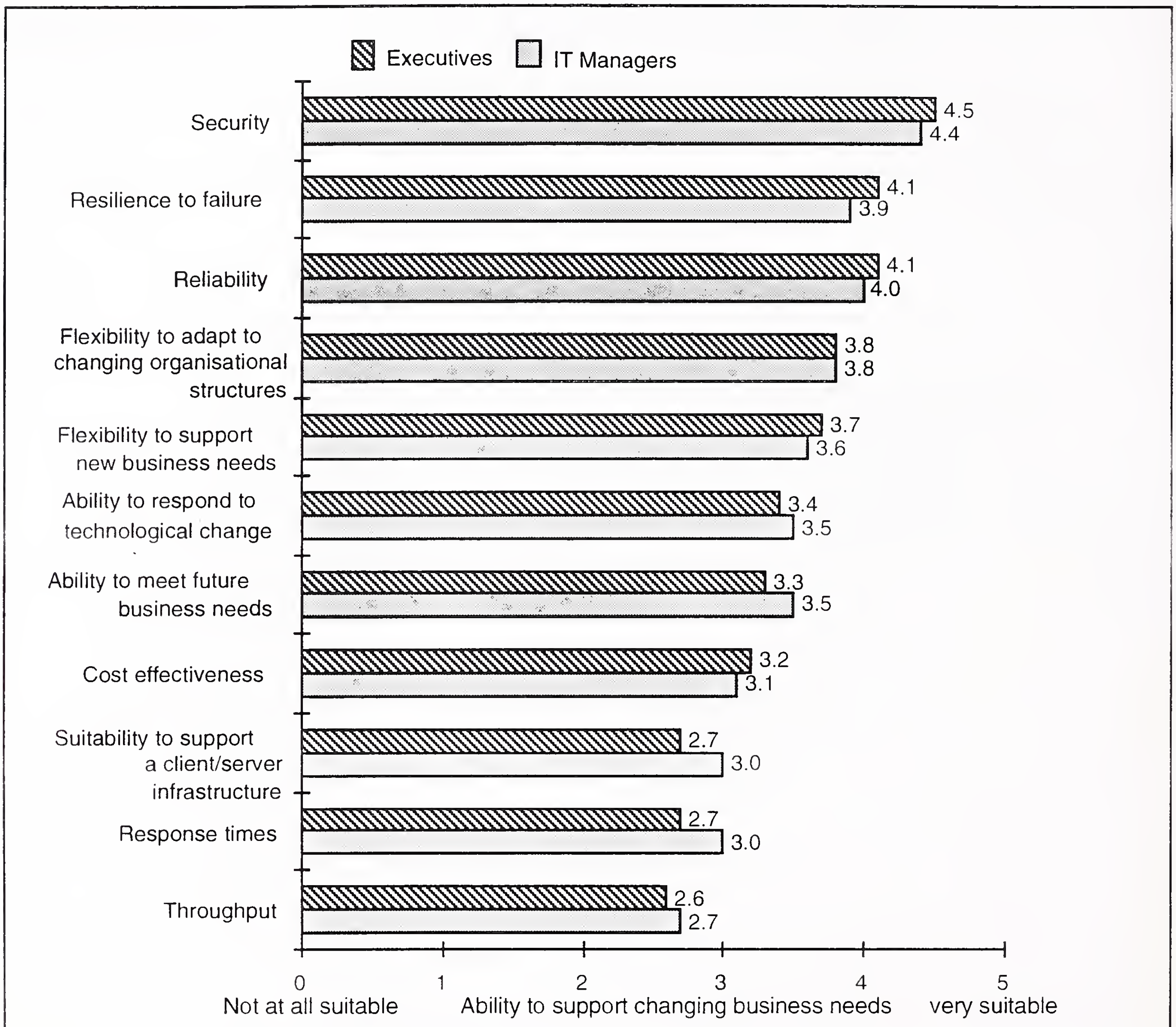
Overall, the WANs currently in place are perceived to have excellent levels of security and to be quite reliable and resilient. In addition, changing organisational structures caused by corporate restructuring are not perceived to be likely to have a significant impact on the nature of the wide area network.

However, current WANs are typically perceived to be extremely unsatisfactory in terms of their potential ability to cope with the increasing throughput and the fast response times necessary to support future client/server-based IT infrastructures.

Exhibit III-6 indicates the relative perceptions of senior executives and IT managers concerning the ability of their organisation's current WAN to support its changing business needs.

Exhibit III-6

Ability of WAN to Support Changing Business Needs IT Managers vs. Senior Executives



Sample of 88 respondents. Standard error = 0.2

Source: INPUT

Senior executives and IT managers are in broad agreement in terms of the WAN's characteristics. Over 70% of each group considers its WAN to have a high level of reliability and built-in resilience and over 80% considers the present level of WAN security to be high.

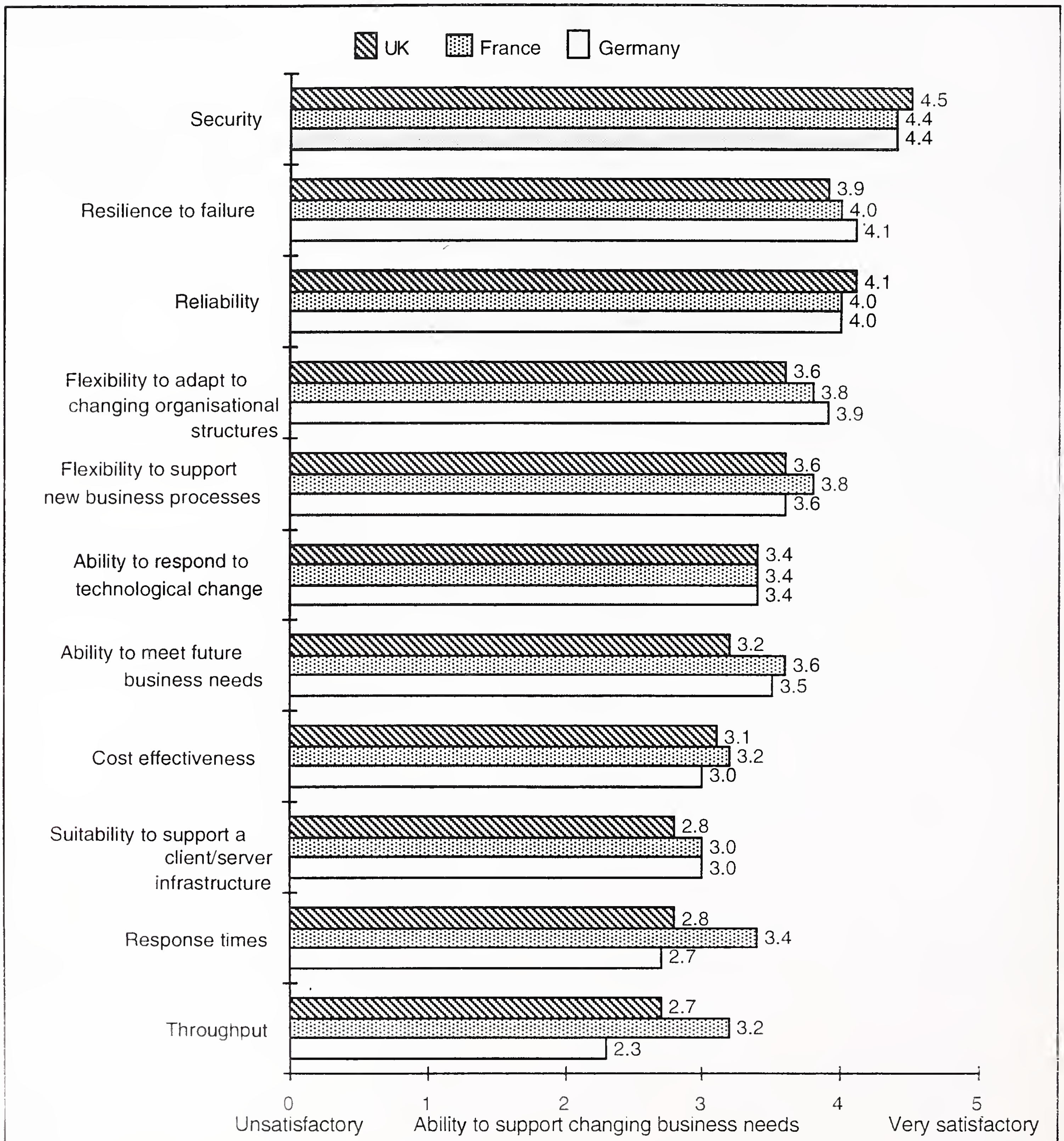
Overall, the views of senior executives tend to be more polarised than those of their IT managers. A higher proportion of them than IT managers have a positive perception of the WAN's strengths and a lower proportion have a positive attitude towards their WAN's weaknesses. For example, less than 20% of European senior executives strongly perceive that their network has the necessary throughput to meet future needs or is suitable for supporting a client/server infrastructure.

Cost-effectiveness is perceived to be another weakness of current wide area networks. Approximately 30% of senior executives strongly perceive their current WAN to be cost-effective, as compared to approximately 40% of IT managers.

Exhibit III-7 indicates the relative perceptions towards WANs within France, Germany and the UK.

Exhibit III-7

Ability of WAN to Support Changing Business Needs: France, Germany and UK



Source: INPUT

Again, there is a very high level of agreement between respondents across each country. The most significant difference is towards the future ability of the network to provide adequate throughput and response times. In these cases, respondents in France were more optimistic than those in Germany and the UK. Within France, approximately 30% of respondents perceived their WAN to be able to provide adequate throughput to meet future needs while less than 15% of respondents held this view in both Germany and the UK.

C

WANs are Inadequate to Support Image Transmission and are Not Cost-Effective

Exhibit III-8 shows the difference between the future importance and the current satisfaction of respondents with the ability of their WAN to support a number of potential requirements.

Exhibit III-8

Ability of Present WAN to Meet Future Needs

WAN Characteristic	Importance	Satisfaction	Difference
Data transmission	4.9	3.9	1.0
Company's national activities	4.8	3.6	1.2
Cost-effectiveness	4.5	3.0	1.5
Inter-LAN connections	4.2	2.9	1.3
Client/server architecture	4.1	2.7	1.4
E-mail	4.1	3.5	0.6
Images	3.5	1.5	2.0
Company's international activities	3.5	2.4	1.1
Voice transmission	2.6	1.3	1.3

Source: INPUT

Overall, the wide area networks currently in place are perceived to be ill-equipped to support a wide range of future needs. There is a considerable margin between the importance attached to the WANs' future capability and its perceived current capability for almost every type of support.

As mentioned earlier, current WANs are perceived to be inadequate to support the wide area connections between LANs required to support the client/server infrastructures now being implemented.

Current WANs are also perceived to be unable to handle the increased throughput typically required over the next few years. The need for increased throughput arises from a number of sources, including:

- The adoption of distributed IT architectures
- The steady increase in the number of users requiring access to remote workstations or servers
- The growing adoption of forms of electronic trading
- The anticipated use of multimedia, requiring the ability to transmit images between workstations.

Changing business needs are widely forecast to produce a requirement for cost-effective multimedia transmission capability within the next three years, something that is generally absent from corporate data networks at present.

In addition, many corporate data networks are still perceived as having poor international coverage, and they typically received an unsatisfactory rating in terms of their cost-effectiveness or value for money. The combined perception of ineffective support for the business and low cost-effectiveness creates a major opportunity for an outsourcing, rather than a project-based, approach to the problem.

One of the areas in which existing WANs were rated mostly highly was in their support for E-mail. However, many users now wish to go significantly beyond E-mail and be able to communicate via data, voice, fax, and image on a desk-to-desk basis.

Exhibit III-9 shows the difference between the future importance, and the current satisfaction, of senior executives with the ability of their WAN to support these potential requirements.

Exhibit III-9

Ability of Present WAN to Meet Future Needs: Senior Executives

WAN Characteristic	Importance	Satisfaction	Difference
Data transmission	4.9	3.8	1.1
Company's national activities	4.8	3.4	1.4
Cost-effectiveness	4.9	3.1	1.8
Inter-LAN connections	3.4	2.3	1.1
Client/server architecture	4.0	2.7	1.3
E-mail	4.6	3.6	1.0
Images	3.6	1.4	2.2
Company's international activities	3.8	2.6	1.2
Voice transmission	3.0	1.1	1.9

Source: INPUT

Exhibit III-10 shows the difference between the future importance, and the current satisfaction, of IT managers with the ability of their WAN to support these potential requirements.

Exhibit III-10

Ability of Present WAN to Meet Future Needs: IT Managers

WAN Characteristic	Importance	Satisfaction	Difference
Data transmission	4.9	4.0	0.9
Company's national activities	4.7	3.7	1.0
Cost-effectiveness	4.3	2.9	1.4
Inter-LAN connections	4.4	3.2	1.2
Client/server architecture	4.2	2.8	1.4
E-mail	3.8	3.4	1.4
Images	3.4	1.6	1.8
Company's international activities	3.4	2.2	1.2
Voice transmission	2.4	1.3	1.1

Source: INPUT

Senior executives tend to attach less importance to inter-LAN connections than do IT managers. However, they attach a higher level of importance to support for:

- E-mail
- The company's international activities
- Voice transmission.

Overall, they tend to be in agreement with IT managers that the most serious failings of their wide area networks are their support for image transmission and their cost-effectiveness. However, senior executives also perceive that the current WANs have serious shortcomings in their ability to support voice transmission and the company's national activities.

Exhibits III-11 to III-13 show the difference between the future importance, and the current satisfaction, of respondents with the ability of their WAN to support these potential requirements for France, Germany and the UK.

Exhibit III-11

Ability of Present WAN to Meet Future Needs: France

WAN Characteristic	Importance	Satisfaction	Difference
Data transmission	4.9	4.2	0.7
Company's national activities	4.8	3.8	1.0
Cost-effectiveness	4.8	3.0	1.8
Inter-LAN connections	4.3	3.2	1.1
Client/server architecture	4.4	3.0	1.4
E-mail	4.2	3.7	0.5
Images	4.0	1.9	2.1
Company's international activities	4.0	2.6	1.4
Voice transmission	3.2	1.4	1.8

Source: INPUT

Exhibit III-12

Ability of Present WAN to Meet Future Needs: Germany

WAN Characteristic	Importance	Satisfaction	Difference
Data transmission	4.9	3.8	1.1
Company's national activities	4.9	3.6	1.3
Cost-effectiveness	4.4	2.8	1.6
Inter-LAN connections	4.5	3.0	1.5
Client/server architecture	4.1	2.6	1.5
E-mail	4.0	3.3	0.7
Images	3.7	1.6	2.1
Company's international activities	3.7	2.4	1.3
Voice transmission	2.7	1.1	1.6

Source: INPUT

Exhibit III-13

Ability of Present WAN to Meet Future Needs: UK

WAN Characteristic	Importance	Satisfaction	Difference
Data transmission	4.9	3.8	1.1
Company's national activities	4.6	3.6	1.0
Cost-effectiveness	4.3	3.1	1.2
Inter-LAN connections	3.7	2.7	1.0
Client/server architecture	3.9	2.7	1.2
E-mail	4.0	3.5	0.5
Images	2.7	1.2	1.5
Company's international activities	2.7	2.0	0.7
Voice transmission	1.9	1.4	0.5

Source: INPUT

Again, there is a very high level of agreement between respondents across countries. In each country, the most important failings of the current WAN are perceived to be its inability to support image transmission and its lack of cost-effectiveness.

The major differences between the countries are the low levels of importance which the UK attaches, compared to France and Germany, to the need for the network to support:

- Image transmission
- The company's international activities
- Voice transmission.

Again, there is a danger of organisations in the UK being less international in their ambitions than their counterparts in France and Germany, and being less prepared to take advantage of new technologies.

IV

WAN Outsourcing - A Natural Extension of Outsourcing Activity

A

Pressure on In-house WAN Services is Increasing

Exhibit IV-1 lists the impacts the anticipated network changes are expected to have on the ability of organisations to develop and support their wide area networks in-house.

Exhibit IV-1

Impact On In-house Ability to Develop & Support WAN

Impact	Number of mentions			
	Germany	France	UK	Total
Will deliver to best of in-house ability	8	6	8	22
Will subcontract to external suppliers	2	5	7	14
Considerable pressure	4	1	2	7
Increase internal resources	3	2		5
Requires large investment	1	2		3
It is impossible to do in-house	2	1		3

Source: INPUT

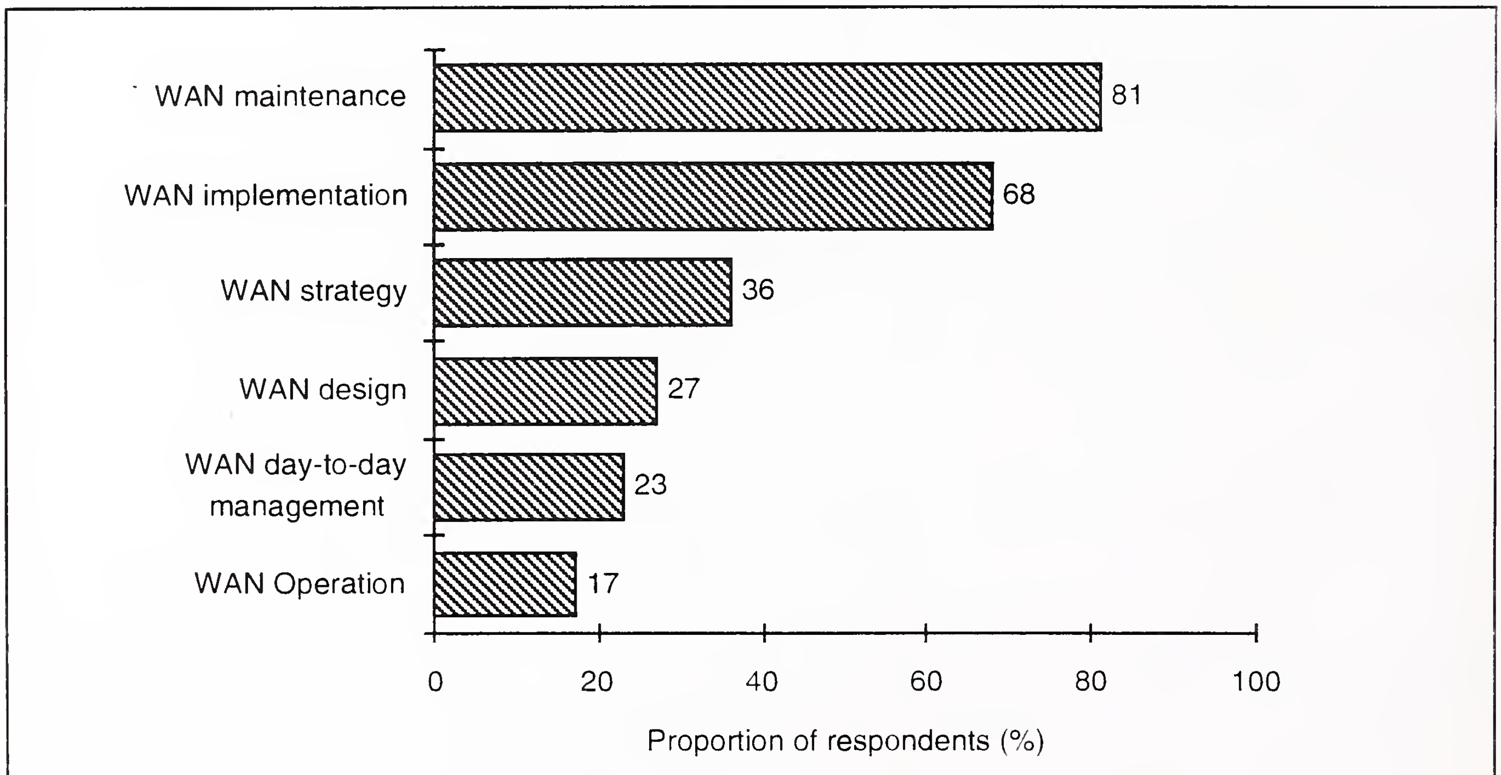
The changes that will need to be made to existing wide area networks to accommodate future business requirements are extensive. Consequently, many organisations are feeling the pressures of anticipated high investment, the need to introduce new skills in-house and increasing workloads. Despite these pressures, many organisations will endeavour to meet their future wide area networking needs by extending the capabilities of their own corporate networks. This is recognised as necessitating considerable investment and an increased in-house headcount. Even within organisations adopting this approach, many IT managers recognise that their WAN-related enhancements will have to be prioritised and may proceed too slowly for some internal clients.

On the other hand, other organisations recognise that it will be impossible for them to address changes of this magnitude in-house. While this will encourage some organisations to adopt outsourcing of their wide area networks, many others will undertake more limited subcontracting to give their organisations access to skills and to additional resources that are not available in-house.

However, organisations typically wish to retain control of some WAN-related functions in-house. Exhibit IV-2 identifies at a European level those activities that organisations feel it is unimportant to perform in-house.

Exhibit IV-2

Areas that can be Subcontracted: Europe



Sample of 88 respondents. Standard error = 0.1

Source: INPUT

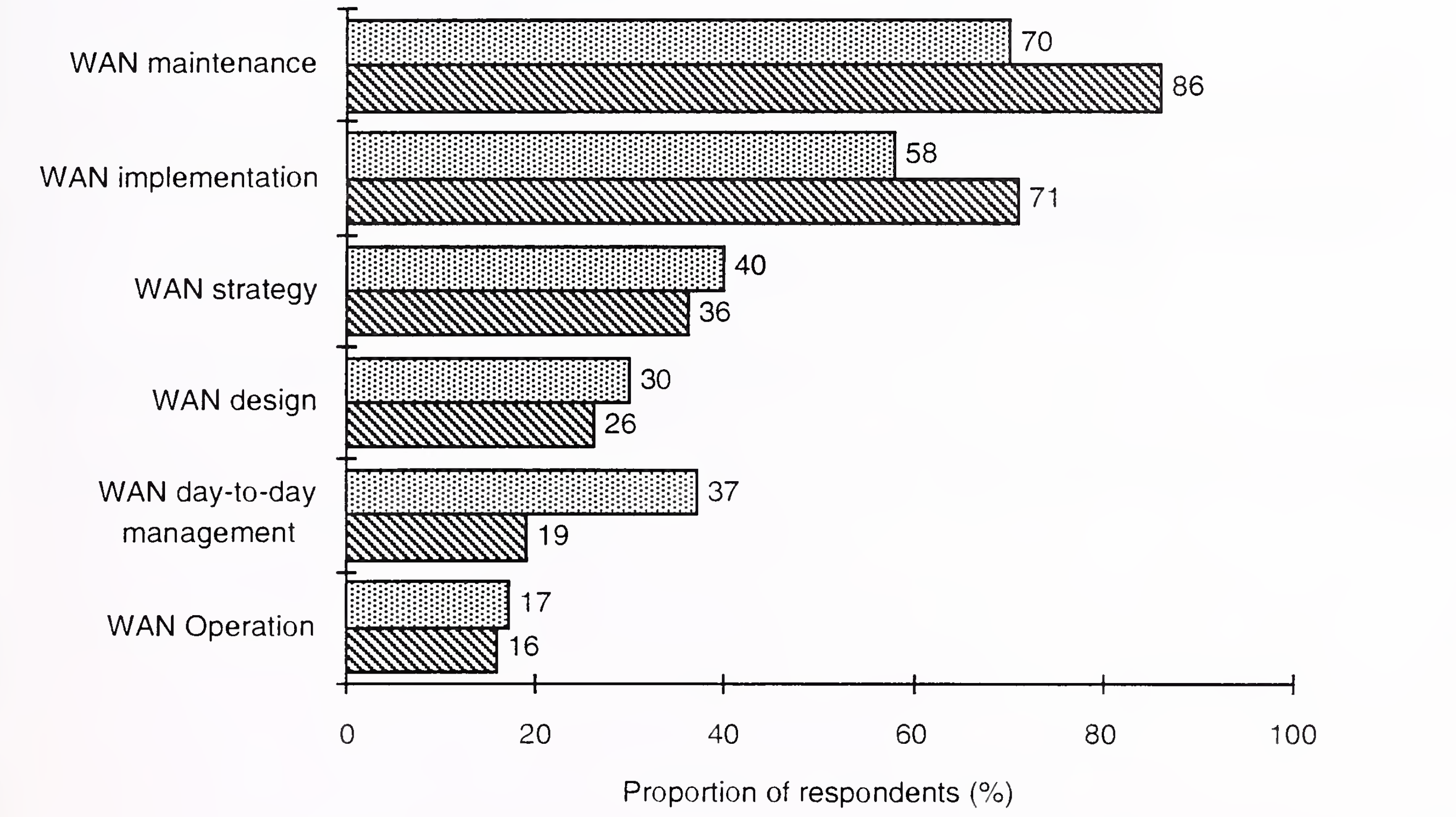
Overall, the majority of organisations are prepared to subcontract the maintenance and implementation of their wide area networks. In addition, approximately 30% of organisations are prepared to subcontract their WAN strategy and design to an external vendor. These latter activities are areas that are classically expected to remain under the control of the client within an outsourcing agreement. However, wide area network technology is changing rapidly and many organisations lack the in-house skills to establish the nature of wide area network that will be appropriate in the future.

Surprisingly, approximately 80% of organisations wish to retain day-to-day management and operation of their wide area network in-house. Vendors will need to educate prospective clients in the feasibility of external vendors providing day-to-day WAN support.

Exhibit IV-3 lists the differing perceptions of IT managers and senior executives towards those activities that they perceive as unimportant to perform in-house.

Exhibit IV-3

Areas that can be Subcontracted IT Managers vs. Executives



Sample of 28 respondents. Standard error = 8%

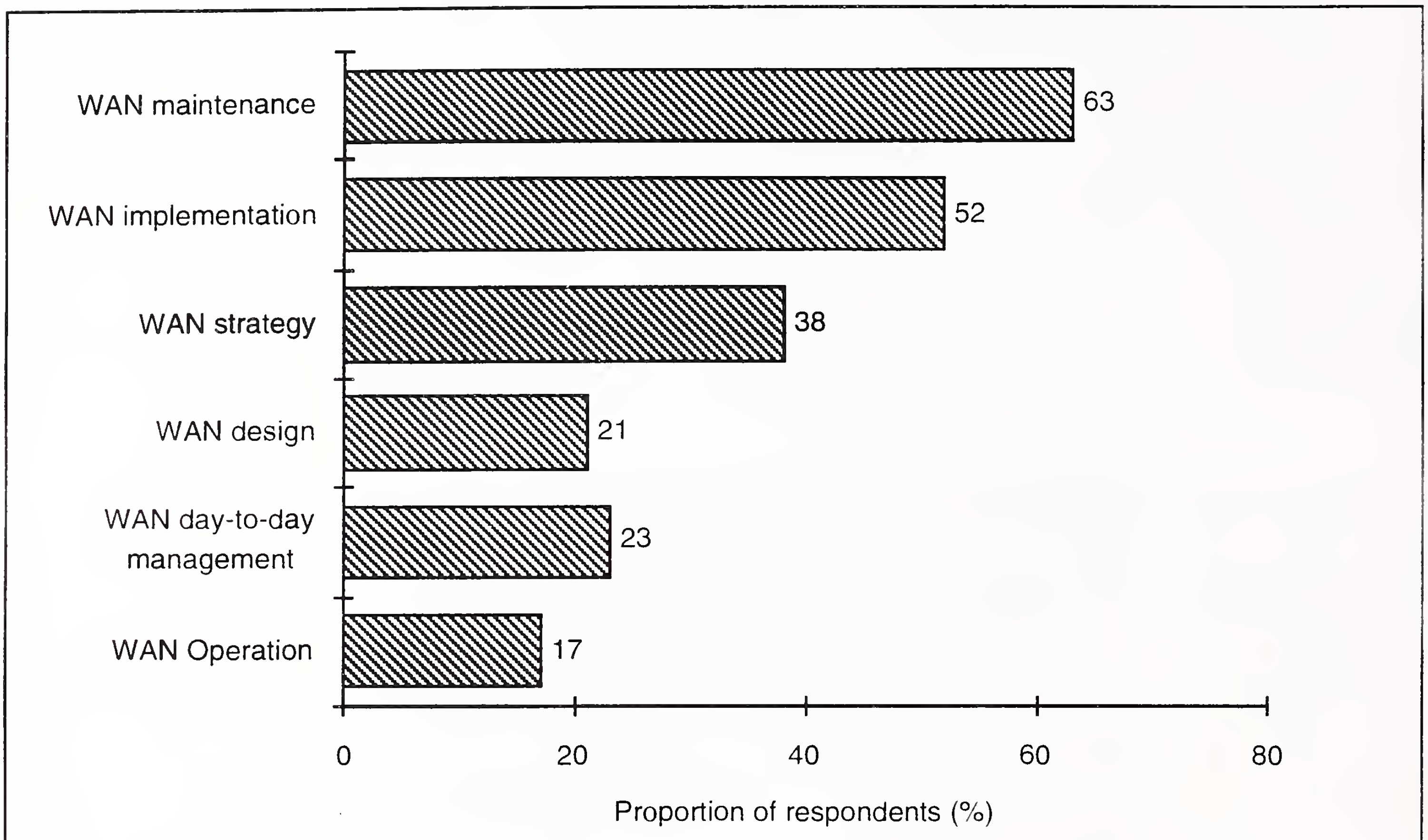
Source: INPUT

The most significant difference from the perspective of the outsourcing vendor is the increased willingness of senior executives, as compared to IT managers, to subcontract the day-to-day management of the wide area network.

Exhibits IV-4 to IV-6 identify the attitudes towards activities seen as unimportant to perform in-house for organisations in Germany, France and the UK respectively.

Exhibit IV-4

Areas that can be Subcontracted: Germany

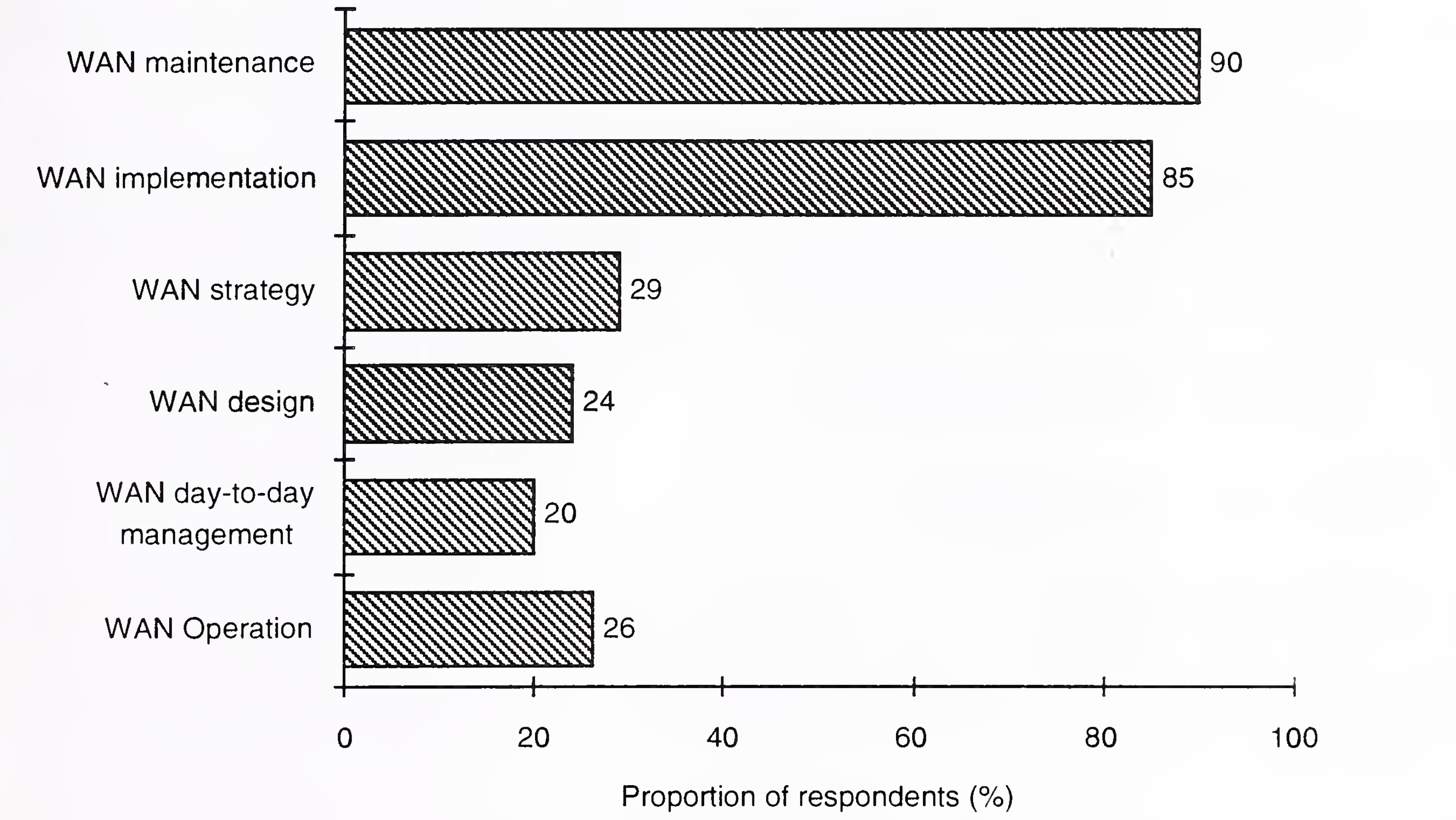


Sample of 30 respondents. Standard error = 8%

Source: INPUT

Exhibit IV-5

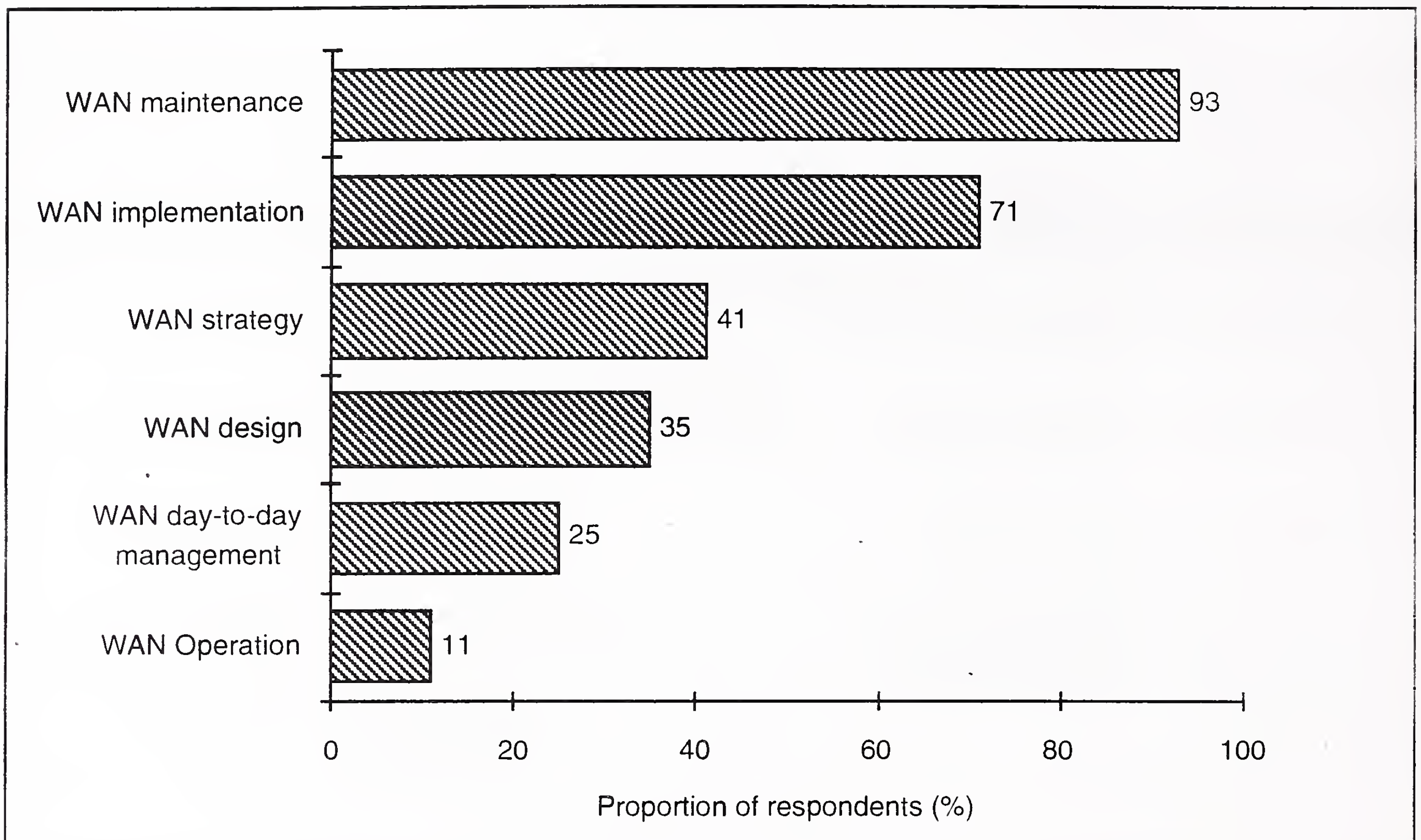
Areas that can be Subcontracted: France



Sample of 28 respondents. Standard error = 8% *Source: INPUT*

Exhibit IV-6

Areas that can be Subcontracted: UK



Sample of 28 respondents. Standard error 8%

Source: INPUT

The main differences between the attitudes in each country are:

- The apparently low level of willingness of organisations in Germany to subcontract wide area network maintenance and implementation
- The apparent high level of willingness of organisations in France to subcontract the operation of their wide area networks, especially compared to organisations in the UK.

Overall, the main issue for outsourcing vendors is that while organisations show a reasonably high propensity to subcontract the development of their wide area network strategies and design, they are still comparatively resistant to outsourcing the day-to-day management and operation of their corporate networks.

B

Outsourcing Perceived to Contribute to Improved WAN Effectiveness

Exhibit IV-7 lists the principal contributions that respondents perceived outsourcing their wide area networks would make to their business.

Exhibit IV-7

Perceived Contribution of WAN Outsourcing

Contribution	Number of mentions			
	Germany	France	UK	Total
None	8	3	14	25
Cost reduction	4	4	1	9
Introduction of skills not present in-house	4	2	1	7
Natural extension of current IT outsourcing	-	2	2	4
Transfer of responsibility	1	1	1	3

Source: INPUT

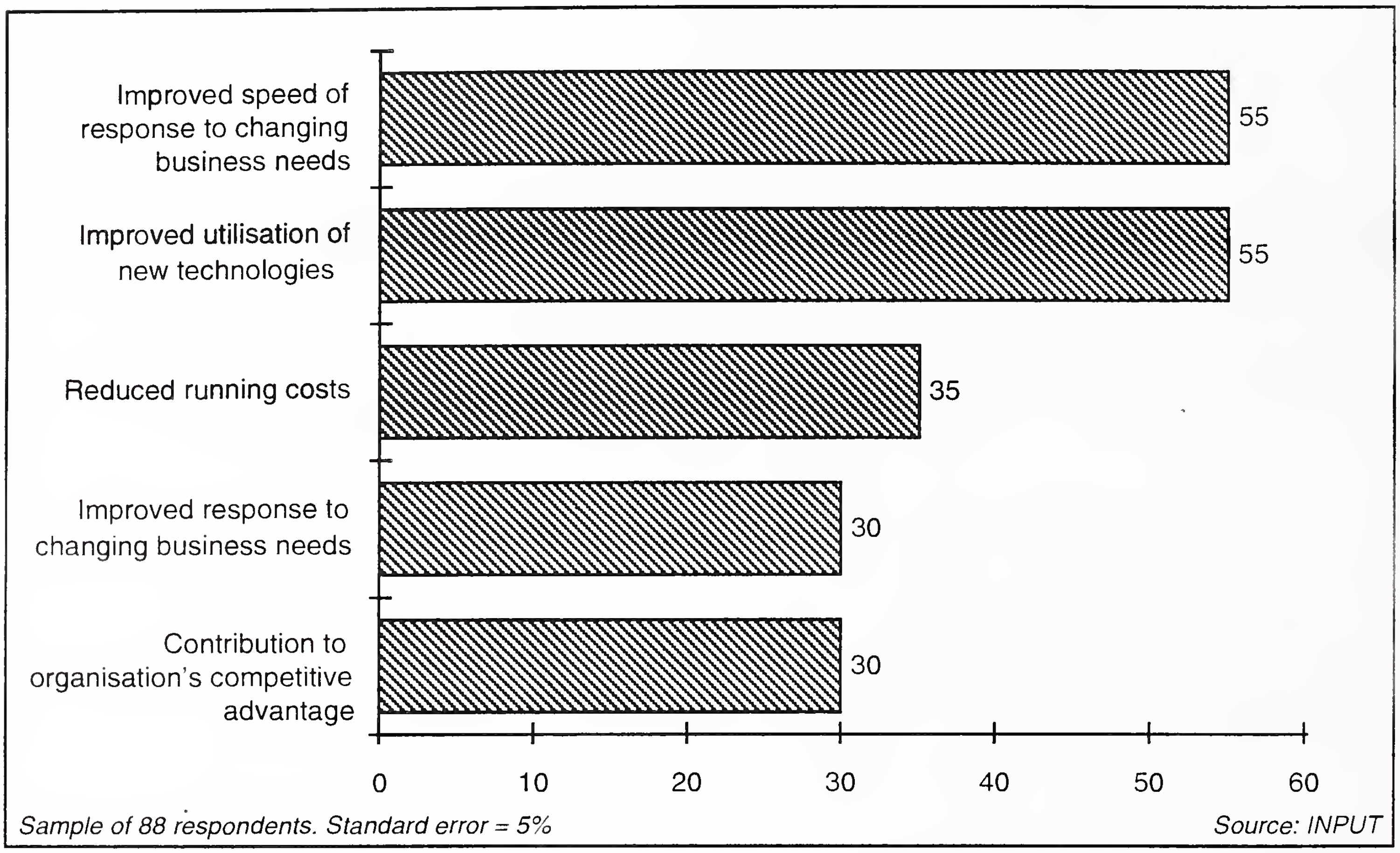
Organisations in the UK were strongly defensive towards outsourcing, with approximately a half of UK-based respondents stating that outsourcing their WAN would have no benefit for their business.

To a certain extent, WAN outsourcing is regarded as a logical extension of datacentre outsourcing. Typically, the wide area network is not an area that organisations are comfortable in outsourcing first. While there is often an element of WAN outsourcing associated with datacentre outsourcing, WAN outsourcing is most naturally carried out in association with distributed systems and desktop service outsourcing.

Exhibit IV-8 indicates the proportion of respondents who strongly perceive that WAN outsourcing would deliver each of the potential benefits listed.

Exhibit IV-8

Perceived Benefits of WAN Outsourcing



Sample of 88 respondents. Standard error = 5%

Source: INPUT

The principal areas of agreement between senior executives and IT managers are that WAN outsourcing would assist their organisation by providing the resources to enable a quicker response to changing business needs and would lead to improved utilisation of new technologies. The majority of both IT managers and senior executives perceive that WAN outsourcing would deliver both of these benefits.

The principal benefit often cited for WAN outsourcing is its ability to provide network access beyond the limited scope of many existing corporate data networks. Indeed, fewer than 15% of respondents perceived their existing wide area network to be highly satisfactory in terms of its ability to support the company's international activities. Despite this, fewer than 5% of either executives or IT managers perceived that WAN outsourcing would lead to improved geographic coverage.

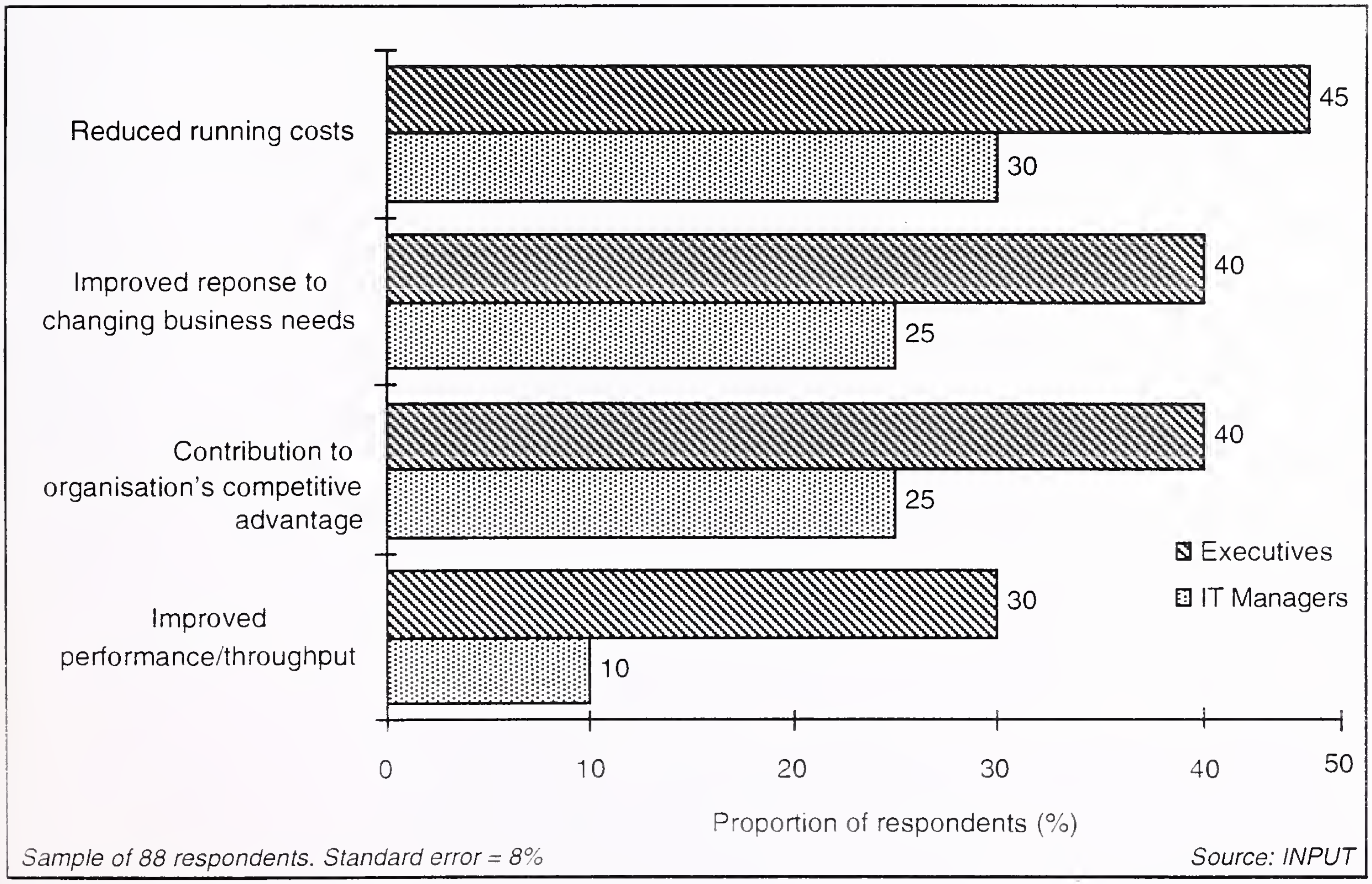
This should be a matter of some concern for vendors since their potential clients apparently still perceive them to be very restricted in terms of their international coverage. This barrier will need to be overcome before WAN outsourcing can become a widely established business practice. One of the major criticisms of vendors in INPUT's 1992 survey was that the vendors could not offer the level of geographic coverage required. Apparently, the majority view is that this situation has not changed markedly over the past two years.

In addition, WAN outsourcing is not expected by the overwhelming majority of respondents to result in improved network resilience. However, this is not necessarily a cause for concern since the majority of organisations are highly satisfied with their current levels of network resilience.

Overall, as might be expected, senior executives typically tend to favour WAN outsourcing more highly than IT managers. The areas where the most significant differences of opinion between senior executives and IT managers occur are listed in Exhibit IV-9.

Exhibit IV-9

Perceived Benefits of WAN Outsourcing Differences in IT Manager and Executive Perspectives



Sample of 88 respondents. Standard error = 8%

Source: INPUT

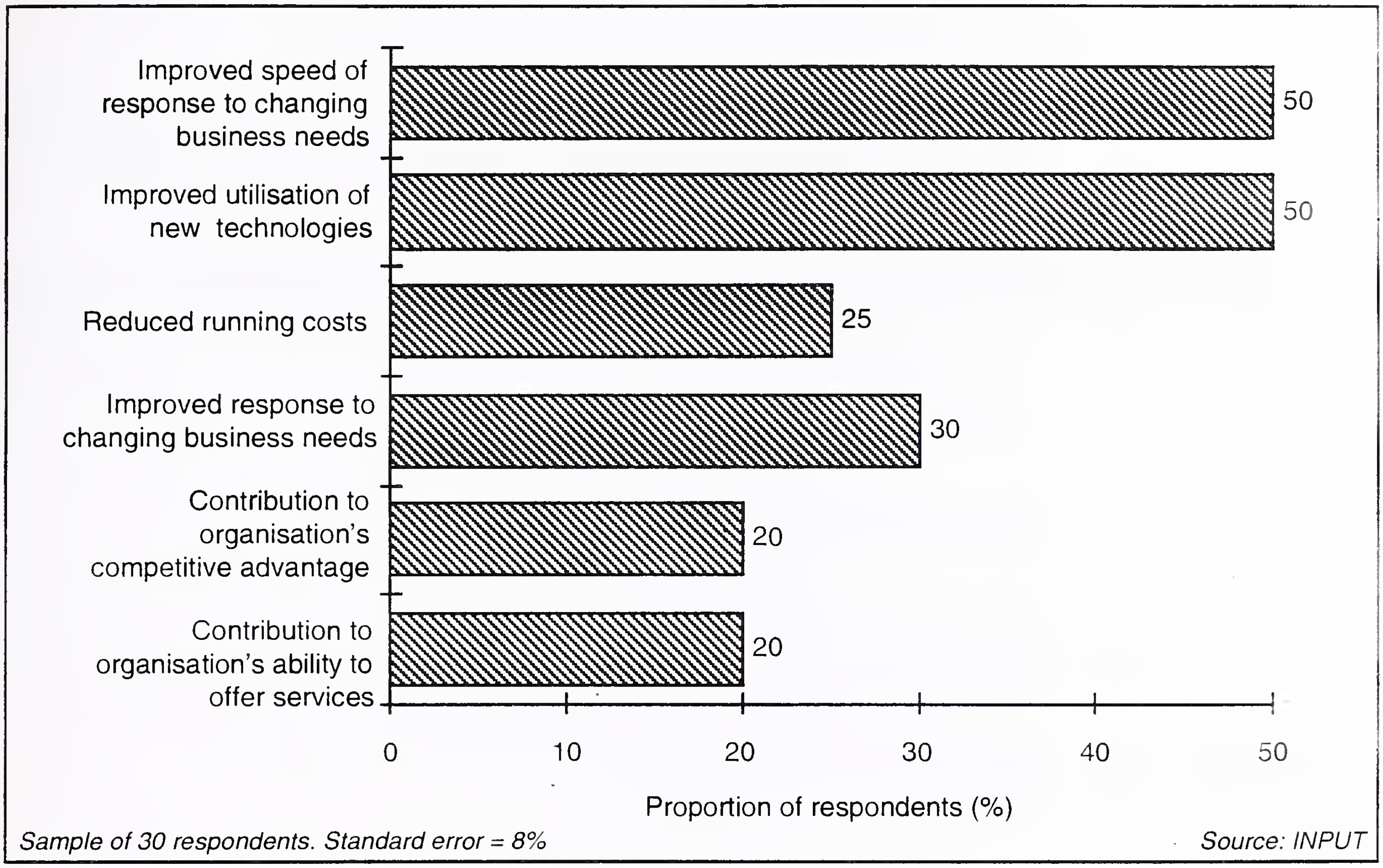
The throughput of existing WANs was widely perceived to be inadequate to meet future business needs. Fewer than 20% of either IT managers or executives perceived that current throughput capability would suffice. Despite this, only a minority of respondents perceived that WAN outsourcing would lead to improved network performance. However, a much higher proportion of executives than IT managers possess this view.

A much higher proportion of respondents, approximately a third, perceived that outsourcing their WAN would reduce its running costs. However, a higher proportion of executives than IT managers hold this view. Similarly, senior executives are more inclined than IT managers to believe than WAN outsourcing will lead to a more appropriate and responsive application of wide area network technology to their business challenges.

Exhibits IV-10 to IV-12 show attitudes towards the potential benefits of WAN outsourcing for each of Germany, France and the UK respectively.

Exhibit IV-10

Perceived Benefits of WAN Outsourcing: Germany

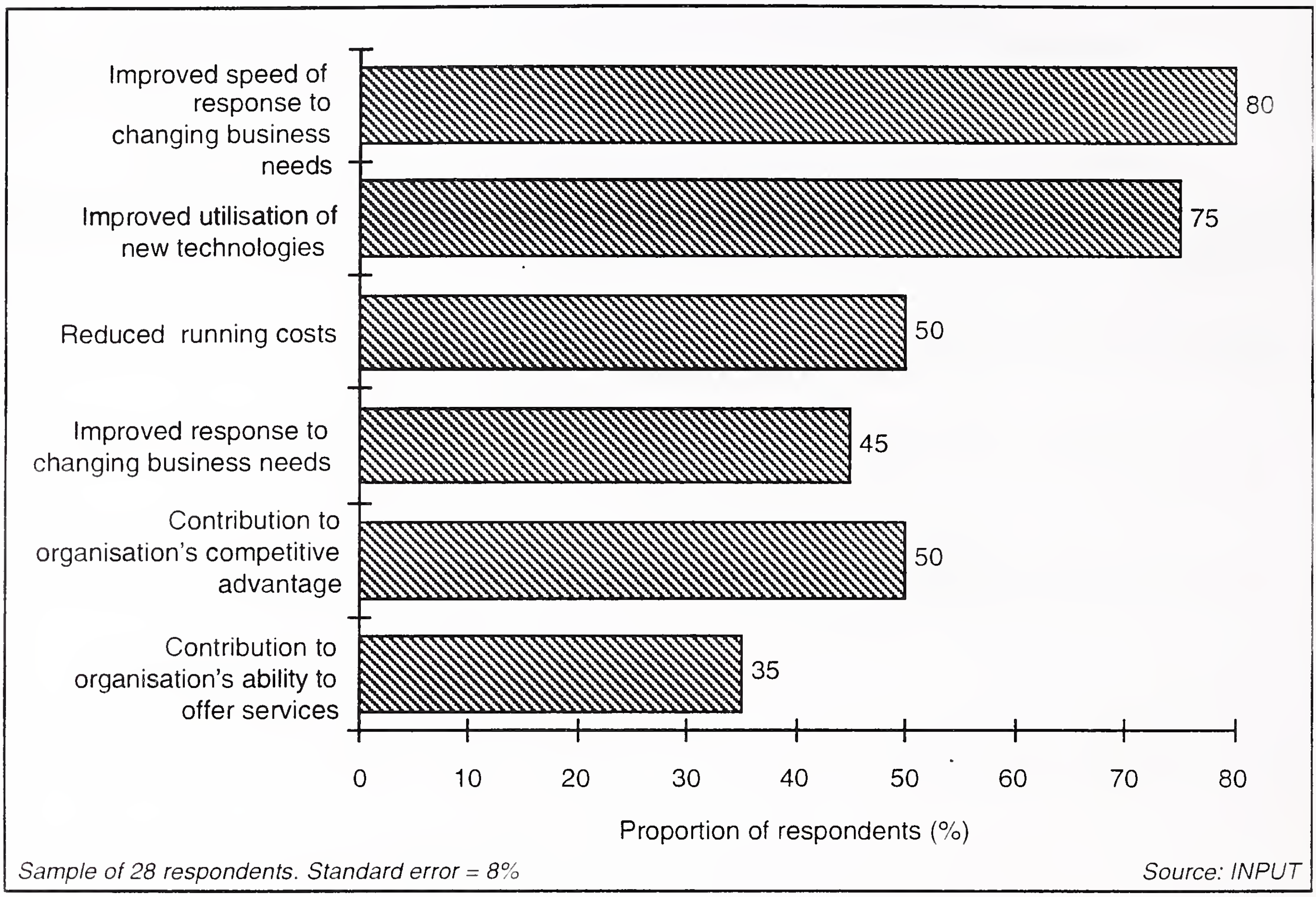


Sample of 30 respondents. Standard error = 8%

Source: INPUT

Exhibit IV-11

Perceived Benefits of WAN Outsourcing: France

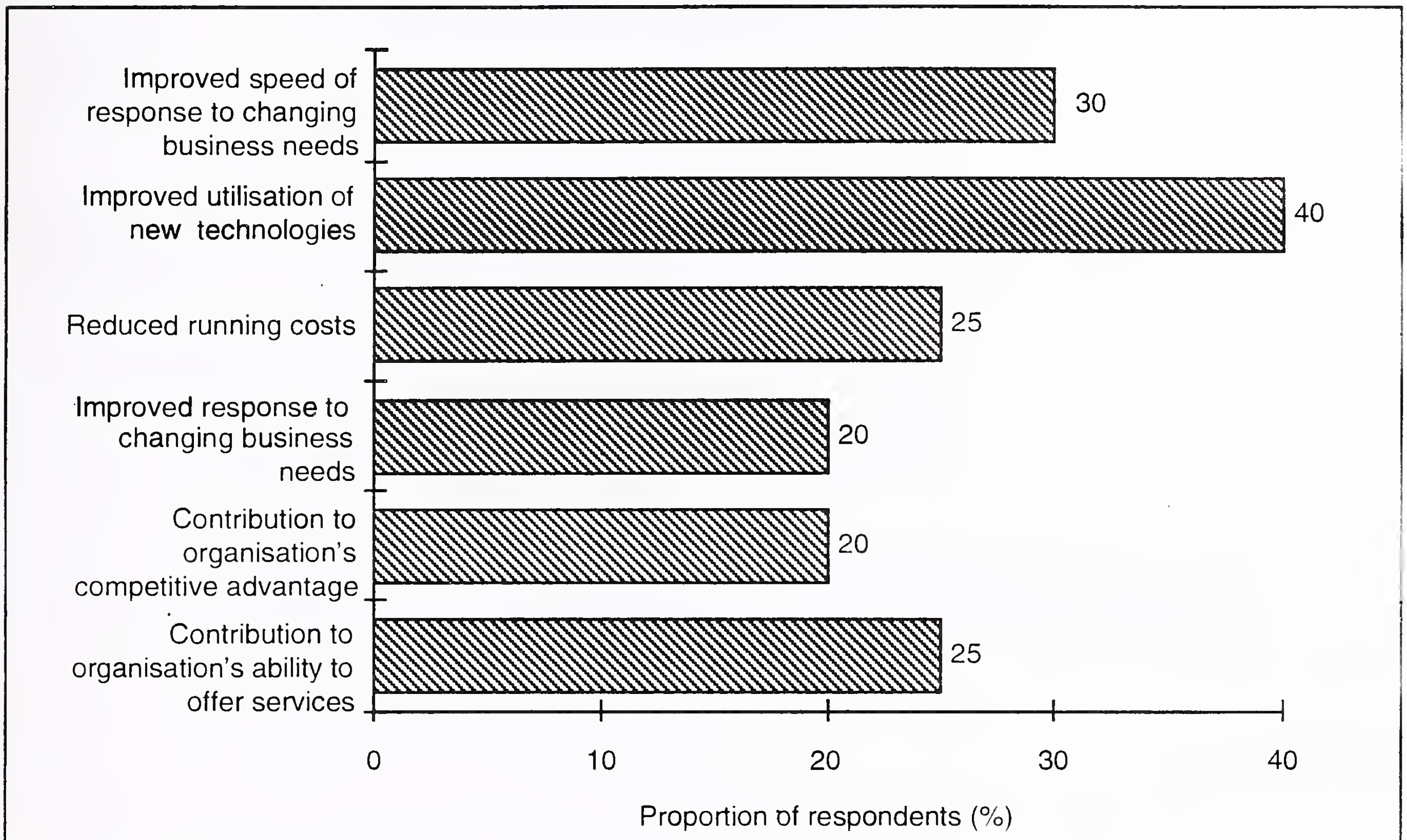


Sample of 28 respondents. Standard error = 8%

Source: INPUT

Exhibit IV-12

Perceived Benefits of WAN Outsourcing: UK



Sample of 28 respondents. Standard error = 8%

Source: INPUT

Overall, organisations in France were the most positive about the potential benefits of WAN outsourcing and organisations in the UK the least enthusiastic. Approximately three-quarters of respondents in France perceived that WAN outsourcing would lead to improved speed of response to changing business needs and improved application of new technologies. On the other hand, organisations in Germany and the UK were particularly pessimistic about the ability of outsourcing to deliver either improved geographic coverage or improved performance. Vendors must change these attitudes if their WAN outsourcing activities are to be a success.

C

One Quarter of Major European Organisations will Outsource WANs within Three Years

Exhibit IV-13 lists the principal circumstances which would lead organisations to outsource their wide area networks.

Exhibit IV-13

Circumstances For WAN Outsourcing

Circumstance	Number of mentions			
	Germany	France	UK	Total
In-house skill shortages	3	1	—	4
Loss of key personnel/Personnel problems	3	—	—	3
As part of overall outsourcing strategy	3	—	—	3
Extensive investment required	1	1		2
Demonstration by vendor of appropriate geographic coverage	—	1	1	2

Source: INPUT

The two main circumstances listed are commonly found in surveys of IT outsourcing and apply equally to IT functions other than wide area network management.

However, two of the reasons listed are more characteristic of wide area networking. As mentioned earlier, WAN outsourcing is not typically seen by organisations as their entry point into IT outsourcing. Instead, WAN outsourcing is regarded as a logical stage in IT outsourcing but one that is typically undertaken either as a later stage in the organisation's outsourcing strategy after functions such as datacentre management have been outsourced, or as an integral part of a comprehensive IT outsourcing exercise.

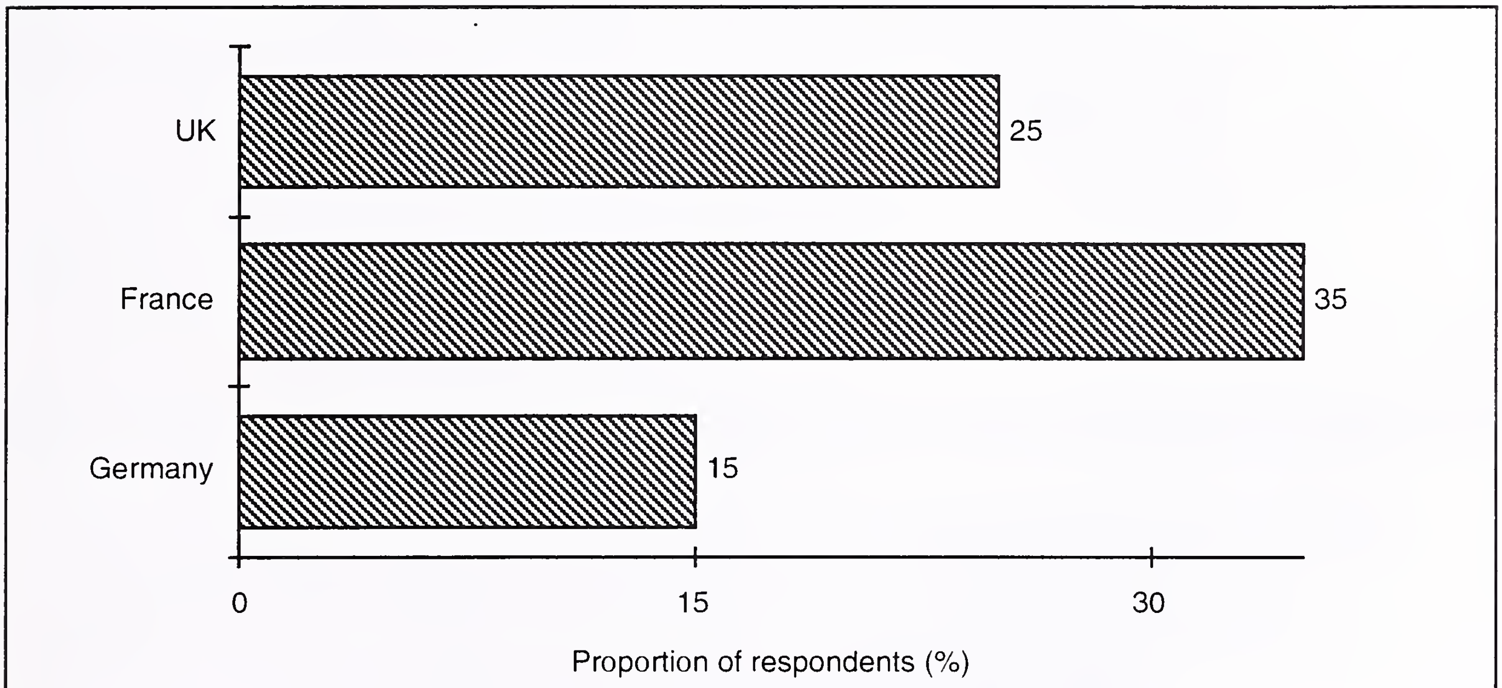
Secondly, as with LAN management to which WAN outsourcing is closely related, it is important that the potential vendor can demonstrate sufficient geographic coverage to meet all of the client's current and anticipated needs. This criterion will remain a major obstacle to WAN outsourcing, while vendors remain unable to convince potential clients of this capability.

However, it is probable that there will be a major increase in WAN outsourcing activity when a considerable number of organisations reach the point at which they wish to switch to true client/server operation and find that it requires considerable investment to re-implement fundamentally their wide area network infrastructure.

Exhibit IV-14 shows the proportions of organisations by country that strongly anticipate outsourcing their wide area networks within three years.

Exhibit IV-14

WAN Outsourcing Expectations



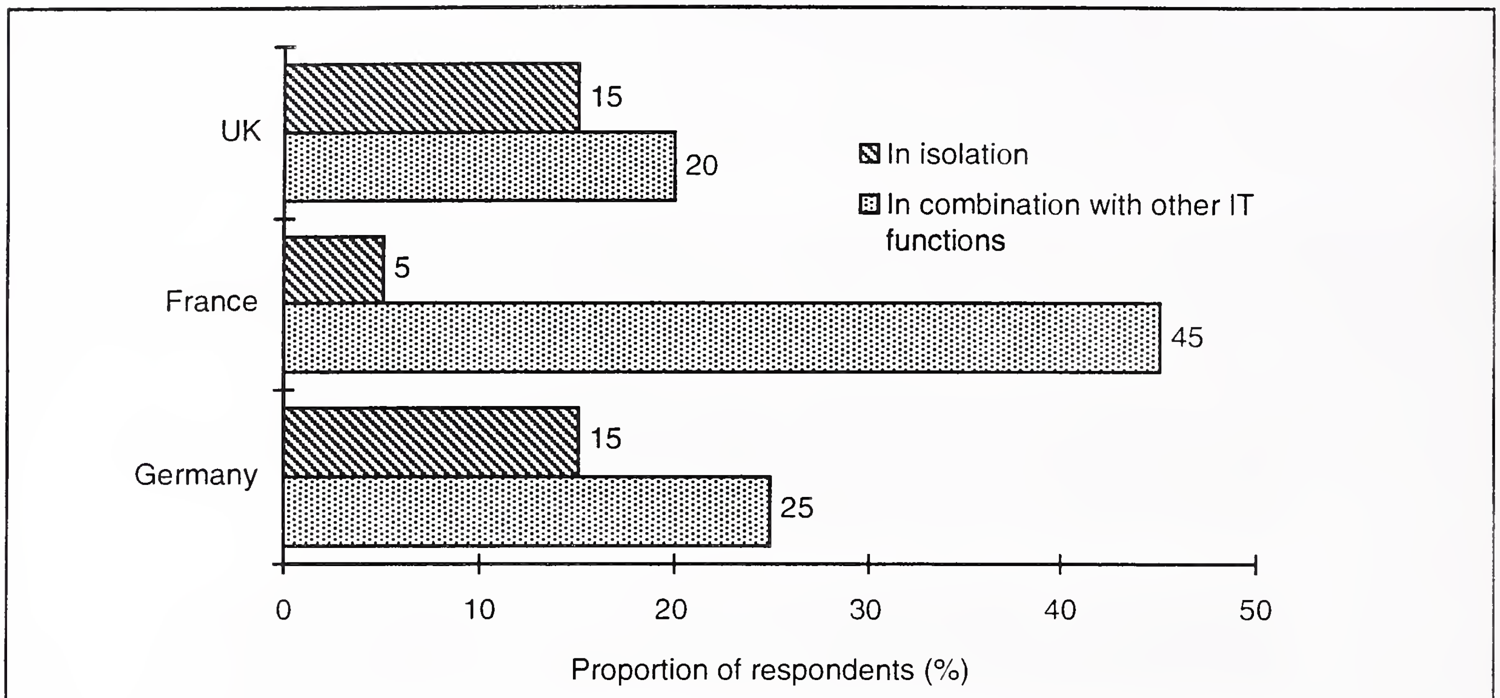
Sample of 88 respondents. Standard error = 8% *Source: INPUT*

Overall, thirty per cent of European organisations expect to outsource their corporate data networks within this period of time. Expectations are highest in France, where organisations have a comparatively positive attitude towards WAN outsourcing. While attitudes towards the potential benefits of WAN outsourcing are more positive in Germany than in the UK, the UK shows a much higher propensity towards WAN outsourcing. Two contributory factors may be the comparative maturity of the IT outsourcing market in the UK compared to Germany and the higher level of liberalisation of the telecommunications environment there.

Exhibit IV-15 shows the proportions of organisations in Europe that strongly favour outsourcing wide area networks in isolation or in combination with other IT functions.

Exhibit IV-15

Pattern of WAN Outsourcing



Sample of 88 respondents. Standard error = 8%

Source: INPUT

Overall organisations are in favour by a ratio of 2:1 of outsourcing their wide area networks in combination with other IT functions rather than as stand-alone activities. In particular, there is a need for vendors to offer a complete distributed systems management service that combines WAN and LAN management.

This will act in favour of the IT outsourcing vendors rather than the outsourcing subsidiaries of the carriers provided these vendors can demonstrate a satisfactory level of WAN outsourcing capability. While this is not the case, clients will be forced to contract out the management of their WANs in isolation despite a preference to the contrary.

V

Organisations Require Single Source IT Infrastructure Management

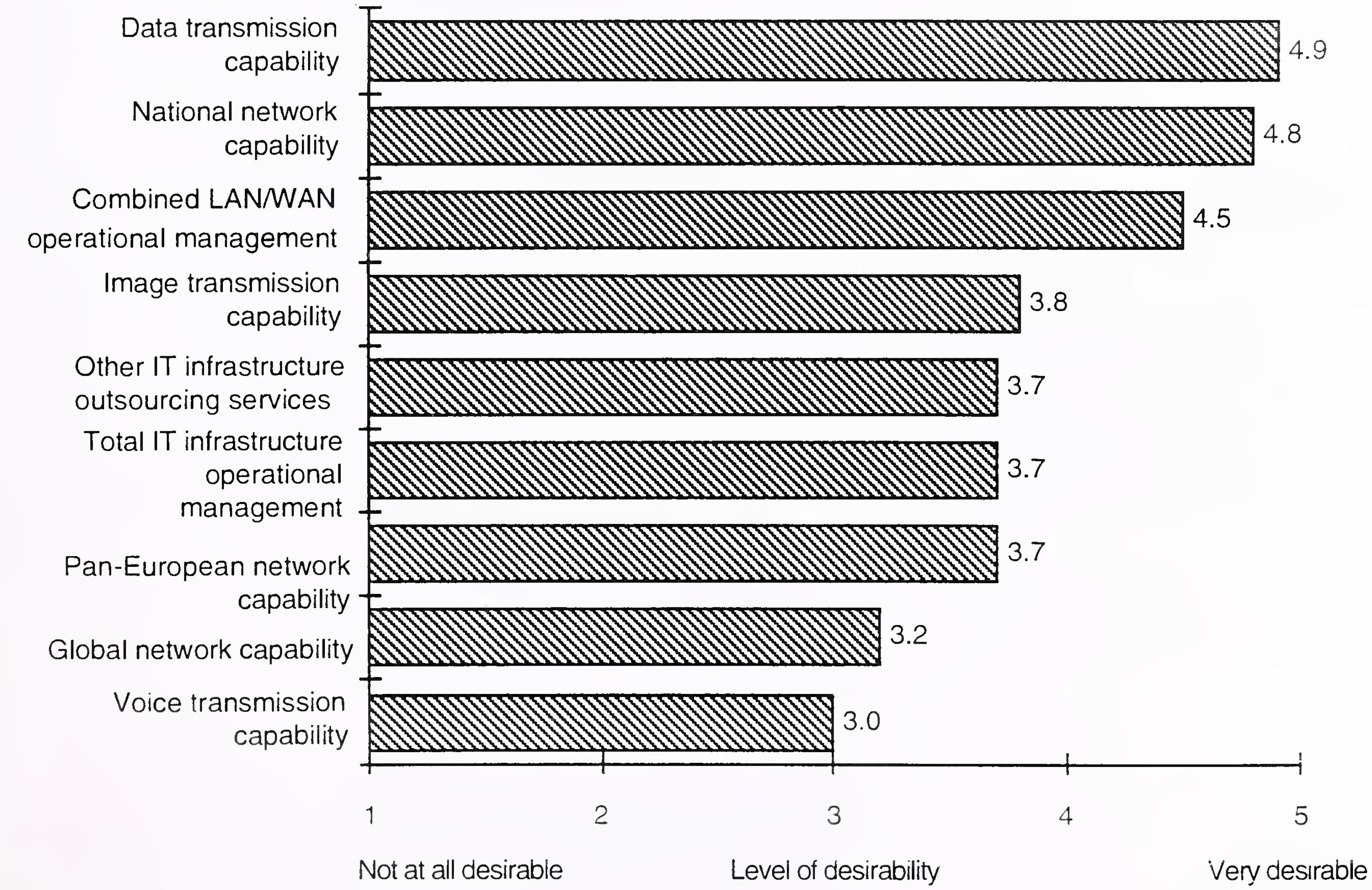
A

Vendors Need to Offer Combined LAN/WAN Management Capability

Exhibit V-1 lists the perceived importance to organisations of each of a number of potential characteristics of WAN outsourcing vendors.

Exhibit V-1

Key Vendor Characteristics



Sample of 88 respondents. Standard error = 0.1

Source: INPUT

It is extremely important that the potential vendor has network capability within the country of origin of the prospective client since a considerable proportion of the organisation's network activity will take place there. However, organisations do require much wider geographic coverage than this. Sixty per cent of organisations perceived that it was important for the outsourcing vendor to have pan-European network capability and approximately half of the organisations perceived that the outsourcing vendor should have global network capability.

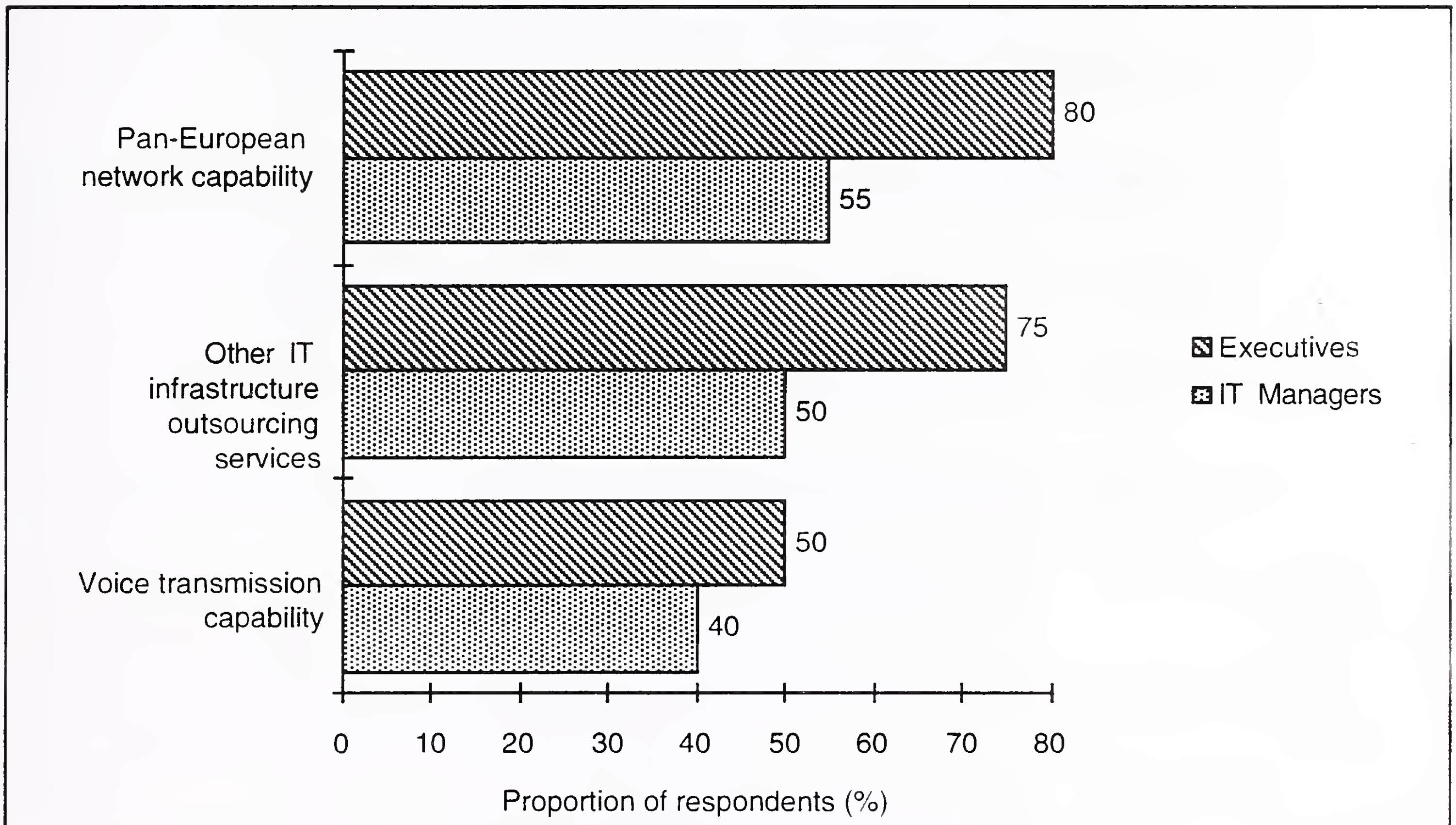
In addition, a more complete service offering than just WAN outsourcing capability is desirable. In particular, approximately 90% of organisations would greatly prefer their potential supplier to offer combined LAN/WAN outsourcing capability and approximately half of the organisations exhibited a high level of requirement for a total IT infrastructure operational management capability.

Organisations also want their suppliers to be capable of supporting a range of media, not just data. In particular, there is a growing need for image transmission capability and approximately 70% of organisations stated that this was an important requirement to them. Furthermore, the ability to combine voice and data is also important with approximately 45% of organisations having a strong need to do so.

Overall there is a high level of similarity between the expectations of senior executives and IT managers. The main differences between the two groups are shown in Exhibit V-2.

Exhibit V-2

Key Vendor Characteristics: Differences in IT Manager & Executive Perceptions



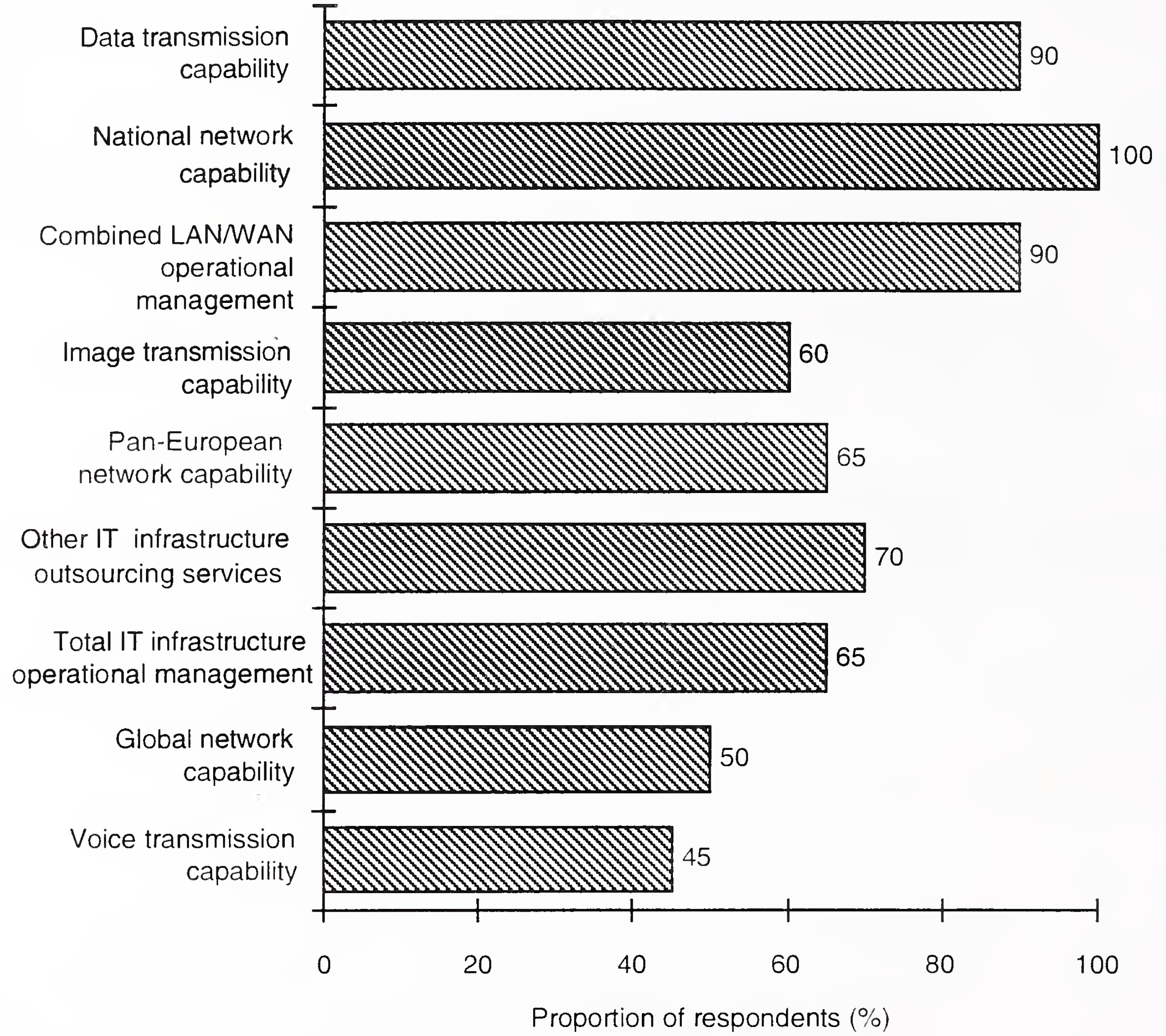
Sample of 88 respondents. Standard error = 8% *Source: INPUT*

Overall, senior executives typically expect slightly higher levels of capability from potential WAN outsourcing vendors than do their IT managers. In particular, higher proportions of senior executives expect pan-European network capability, and they are less likely than IT managers to rely on the services of a WAN specialist to meet their outsourcing requirements.

Exhibits V-3 to V-5 show the perceived importance of each of a number of potential characteristics of WAN outsourcing vendors to organisations in Germany, France and the UK respectively.

Exhibit V-3

Key Vendor Characteristics: Germany

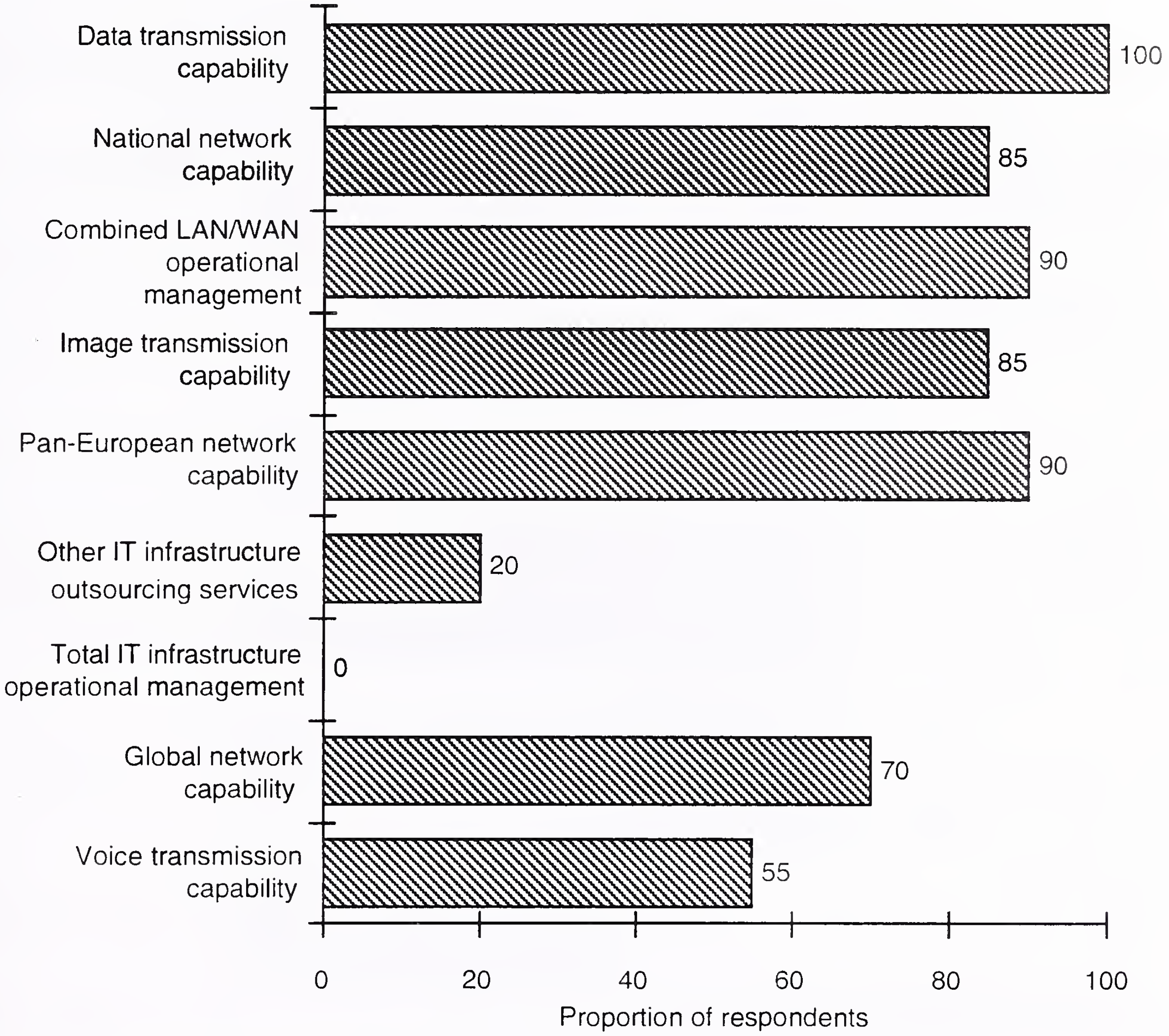


Sample of 30 respondents. Standard error = 8%

Source: INPUT

Exhibit V-4

Key Vendor Characteristics: France

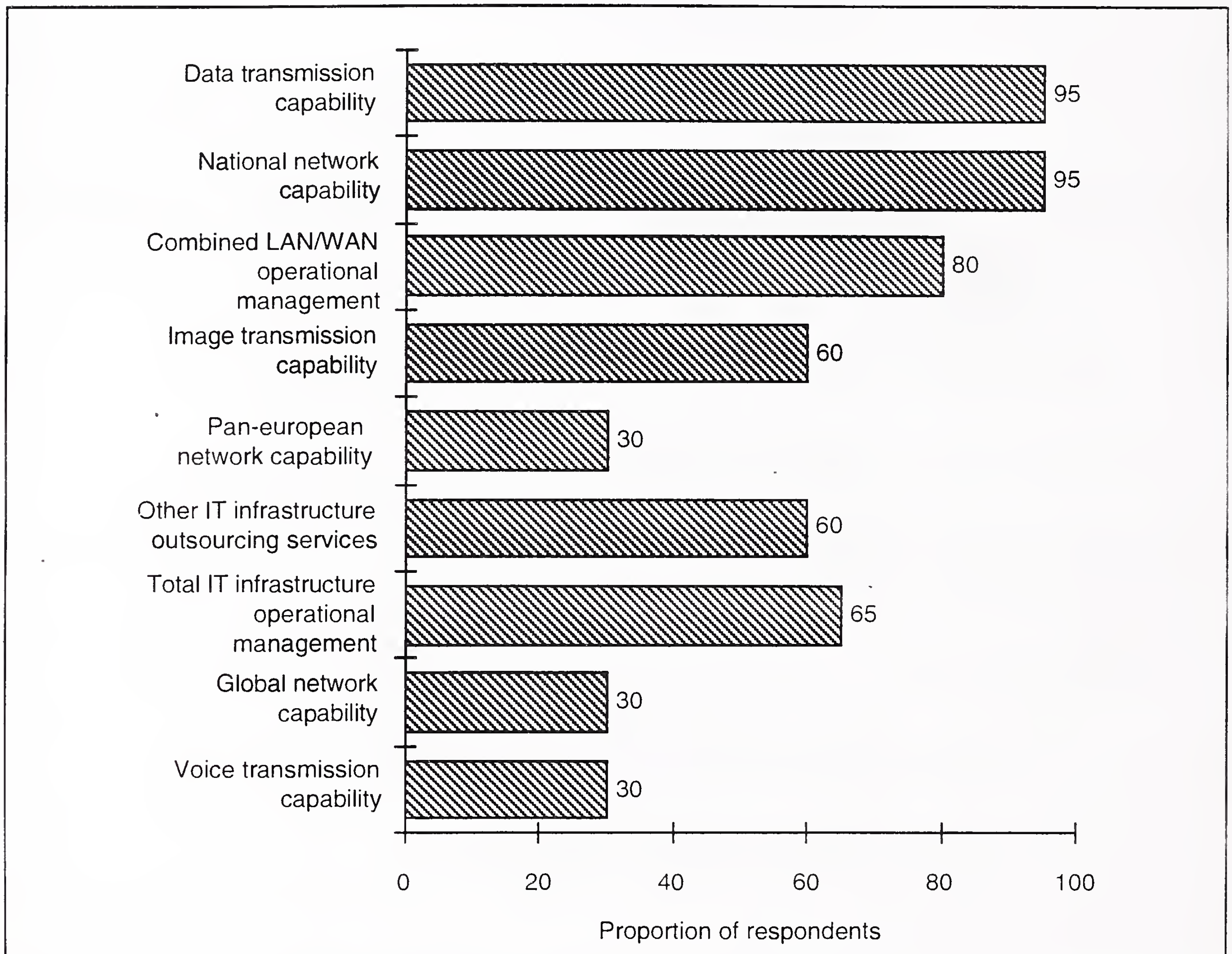


Sample of 28 respondents. Standard error = 8%

Source: INPUT

Exhibit V-5

Key Vendor Characteristics: UK



Sample of 30 respondents. Standard error = 8%

Source: INPUT

Organisations in the UK emerge as particularly insular in their requirements. For example, while approximately 90% of organisations in France and two-thirds of German organisations state that pan-European network capability is an important vendor characteristic, fewer than one third of organisations in the UK perceive this to be a key requirement. A broadly similar pattern applies to global network capability.

Other national differences include:

- A very high level of expectation for image transmission capability in France

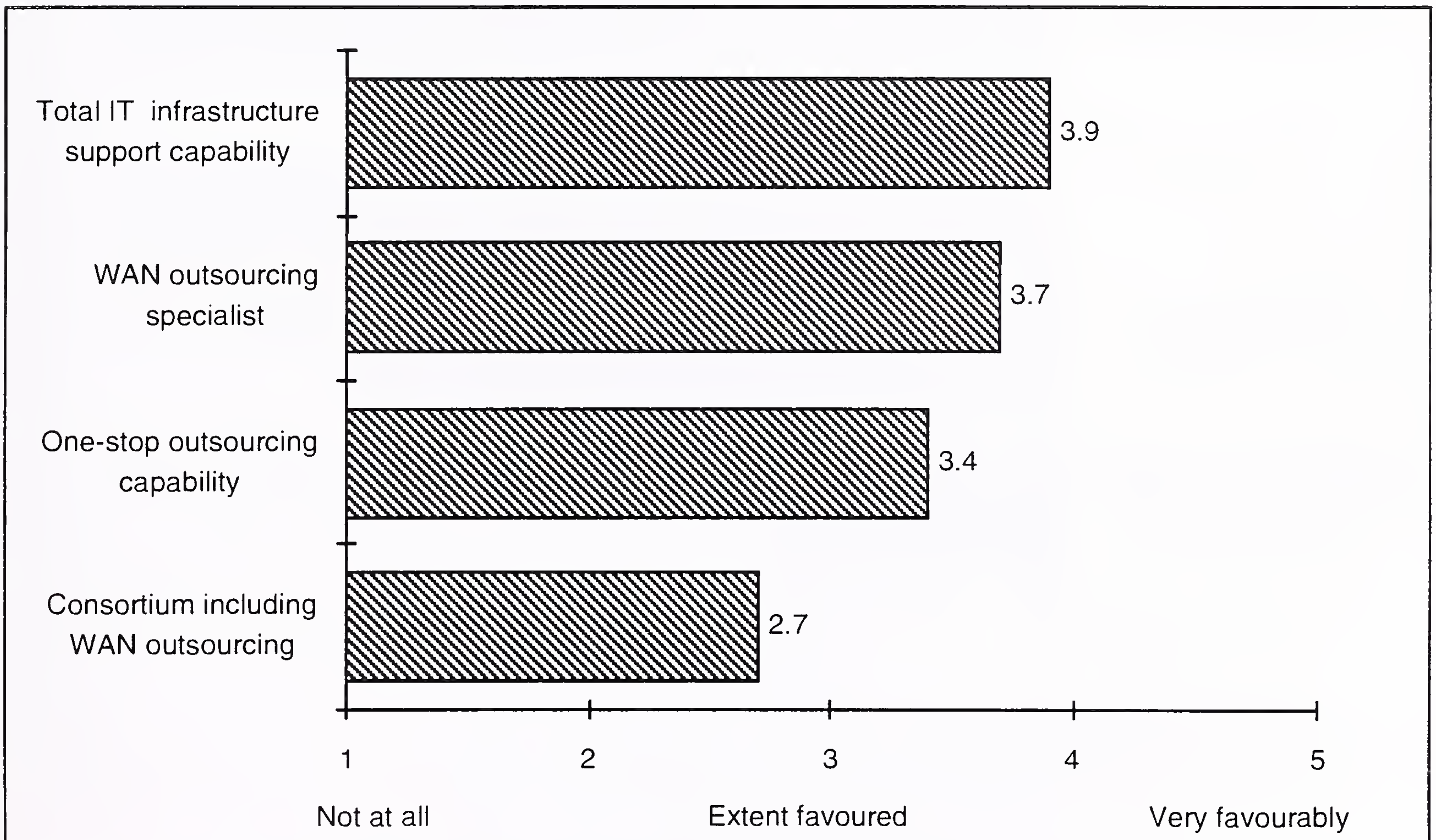
- A much lower perceived need in France, compared to Germany and the UK, to use the same vendor for both WAN outsourcing and other IT outsourcing services.

B
Major IT Outsourcing Vendors Preferred to WAN Specialists

Exhibit V-6 shows organisations' relative preferences among a range of vendor types.

Exhibit V-6

Type of Vendor Favoured



Sample of 88 respondents. Standard error = 0.1

Source: INPUT

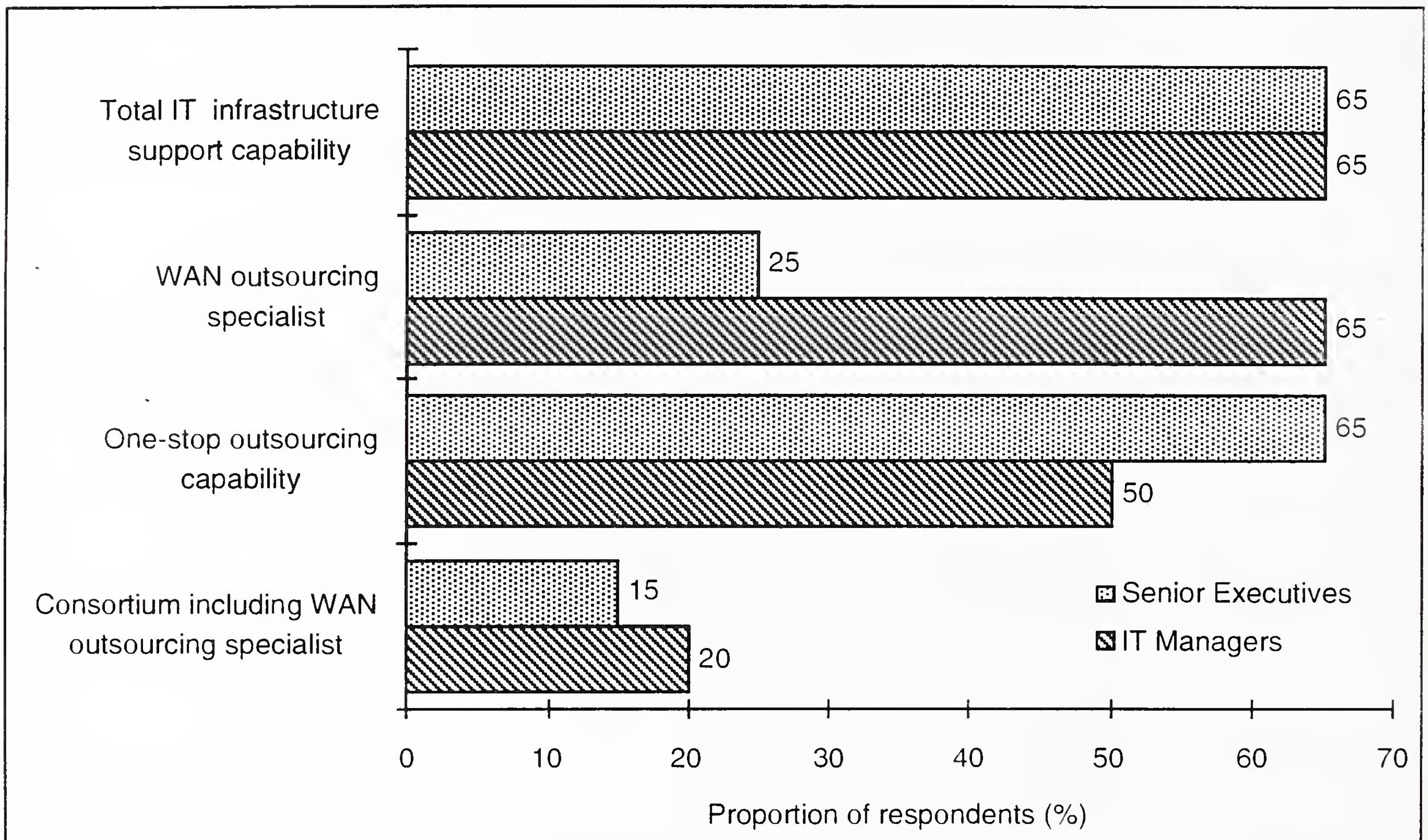
Overall a small majority of organisations would prefer to purchase WAN outsourcing services from a vendor offering total IT infrastructure support capability rather than from a WAN outsourcing specialist. Less than a quarter of organisations perceive a consortium including a WAN specialist to be a suitable mechanism for purchasing WAN services. This is typical of the outsourcing market where purchasers tend to be very wary of using consortia, believing that this considerably increases the level of risk to which they are exposed over the life of the contract.

However, it is probable that when a greater number of vendors are perceived to offer a broad IT infrastructure management capability including comprehensive WAN management services, then this will become much the preferred purchasing option.

Exhibit V-7 shows the difference in perception between senior executives and IT managers.

Exhibit V-7

Type of Vendor Favoured
IT Manager vs. Executive Perspective



Sample of 88 respondents. Standard error = 8% *Source: INPUT*

The main difference in attitude is the relative reluctance of senior executives to outsource WAN management as a standalone function using a WAN outsourcing specialist. IT managers tend to favour equally either outsourcing their wide area network to a vendor with total IT infrastructure support capability or using a WAN outsourcing specialist. Approximately two-thirds of IT managers perceive each of these options to be viable. However, while approximately two-thirds of senior executives favour use of a vendor with total IT infrastructure support capability, only a quarter of senior executives favour use of a WAN outsourcing specialist.

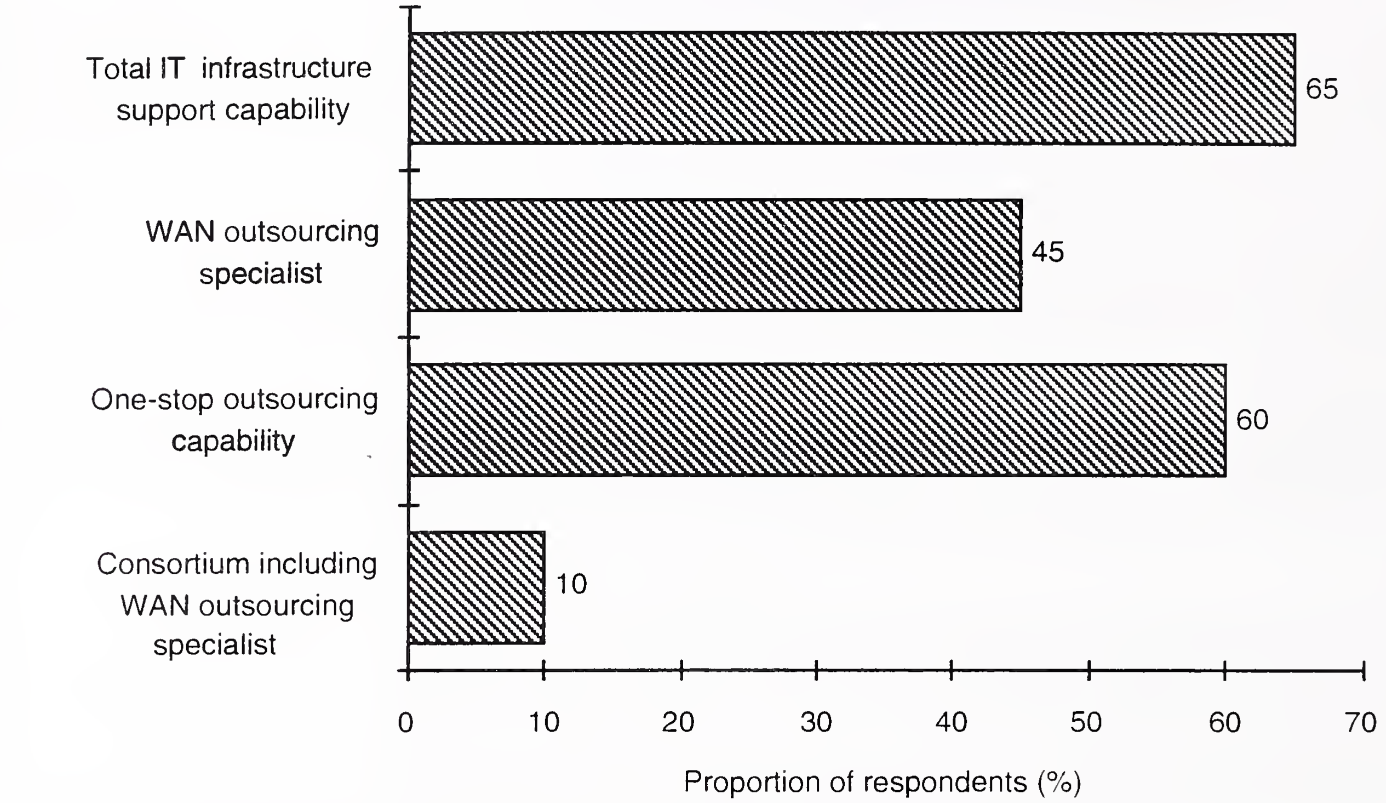
This suggests that IT managers are more aware of the technical skills needed to manage the WAN environment, while senior executives are particularly conscious of the difficulties involved in co-ordinating the activities and relationships amongst a number of vendors, each with responsibility for a particular element of the organisation's IT infrastructure. It also reinforces the view that where senior managers expect to outsource their organisation's IT infrastructure, they typically expect to outsource the entire infrastructure and not just the management of the wide area network.

Again, consortia involving a WAN outsourcing specialist are out of favour with the majority of both IT managers and senior executives.

Exhibits V-8 to V-10 show organisations' relative preferences among a range of vendor types within Germany, France and the UK respectively.

Exhibit V-8

Type of Vendor Favoured: Germany

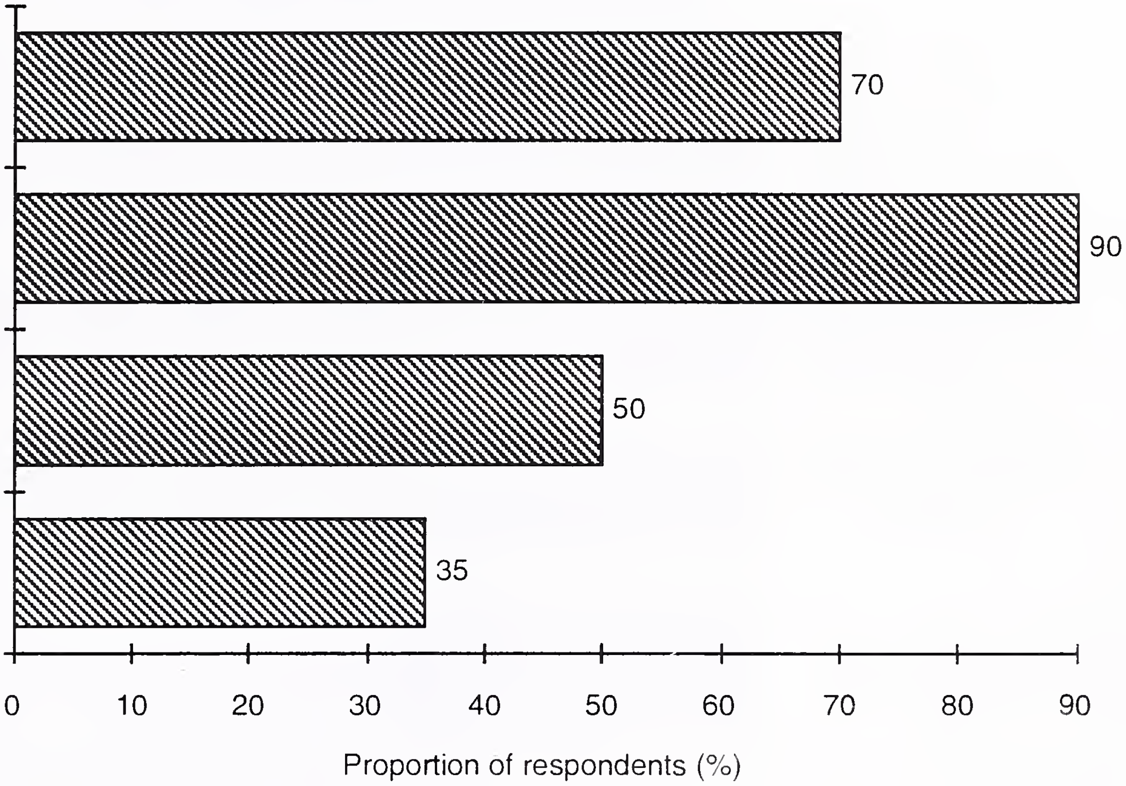


Sample of 30 respondents. Standard error = 8%

Source: INPUT

Exhibit V-9

Type of Vendor Favoured: France

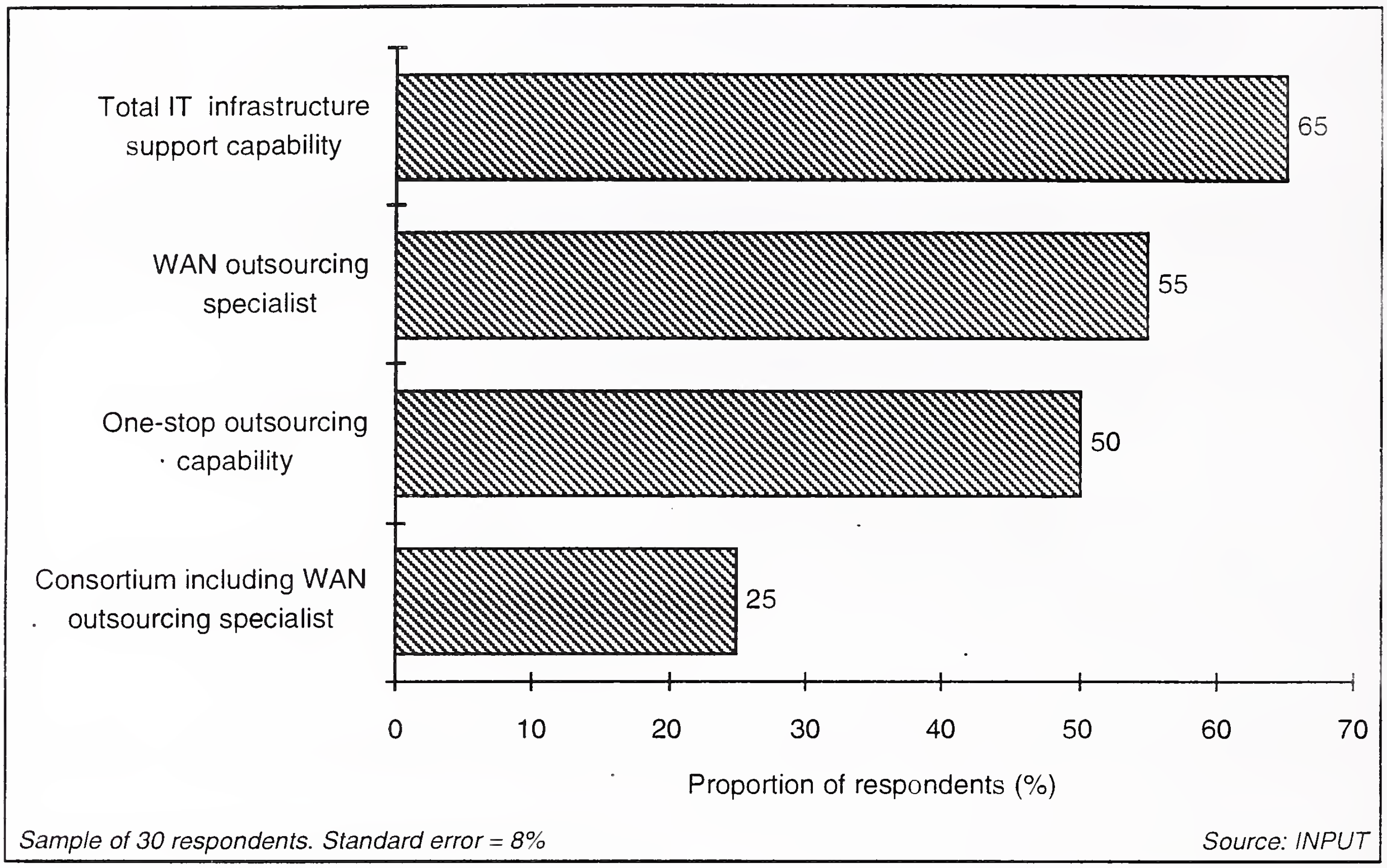


Sample of 28 respondents. Standard error = 8%

Source: INPUT

Exhibit V-10

Type of Vendor Favoured: UK



Sample of 30 respondents. Standard error = 8%

Source: INPUT

The proportion of organisations that perceive use of a vendor with total IT infrastructure support capability to be a viable mechanism for WAN outsourcing is both high and consistent across the three countries. The main difference in attitude is towards the use of a WAN outsourcing specialist. This attitude may reflect the perceived capability of the main national carrier in each country, with the overwhelming majority of organisations in France perceiving this approach to be a viable one. On the other hand, only half of the organisations in Germany and the UK perceive this style of WAN outsourcing to be viable, with organisations in Germany being least in favour of this approach. Similarly, though to a much lesser extent, organisations in France are most in favour of using a consortium including a WAN outsourcing specialist and organisations in Germany least favour this approach.

C

IBM ,EDS and Cap Gemini Sogeti Perceived to be Better Choice than National PTTs

All respondents were asked which vendors they perceived to be best suited to WAN outsourcing. The most frequently mentioned vendors are listed in Exhibit V-11.

Exhibit V-11

Principal Vendors Mentioned: Europe

Vendor	Number of mentions
IBM	22
EDS	13
Cap Gemini Sogeti/debis	12
Digital	7
BT	5
Bull	5
ICL	5

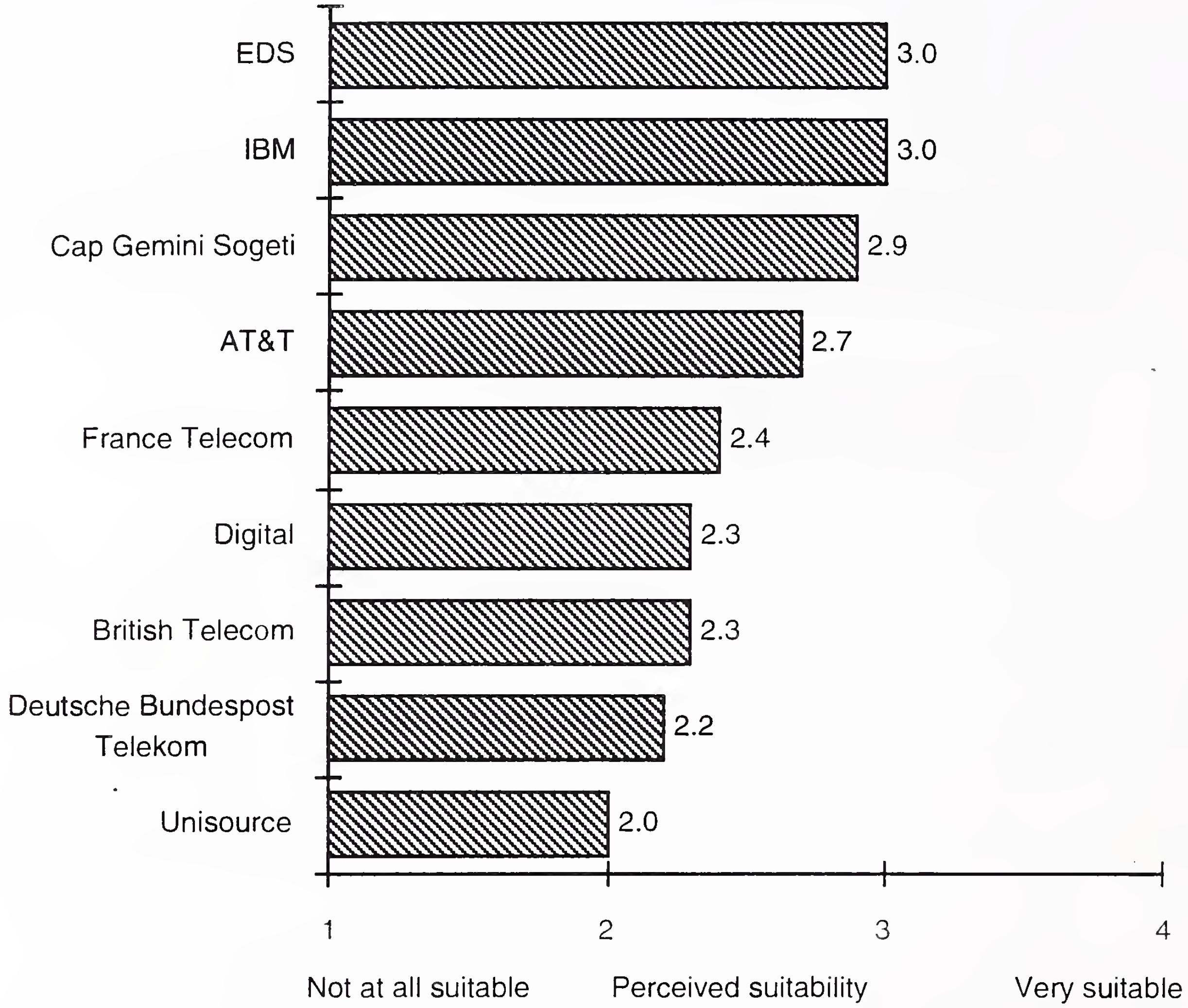
Source: INPUT

The three leading vendors in Exhibit V-11 tended to have a broad level of support across the three countries, while organisations such as the national carriers and the leading European equipment vendors tended to be mentioned only in their own national markets.

Exhibit V-12 shows the overall perceived suitability of each of a number of named vendors as potential suppliers of wide area network outsourcing services.

Exhibit V-12

Perceived Vendor Suitability: Europe



Sample of 88 respondents. Standard error = 0.1 *Source: INPUT*

The overall ratings are very low indicating that no vendor has yet become widely accepted as a highly suitable choice for the provision of WAN outsourcing services.

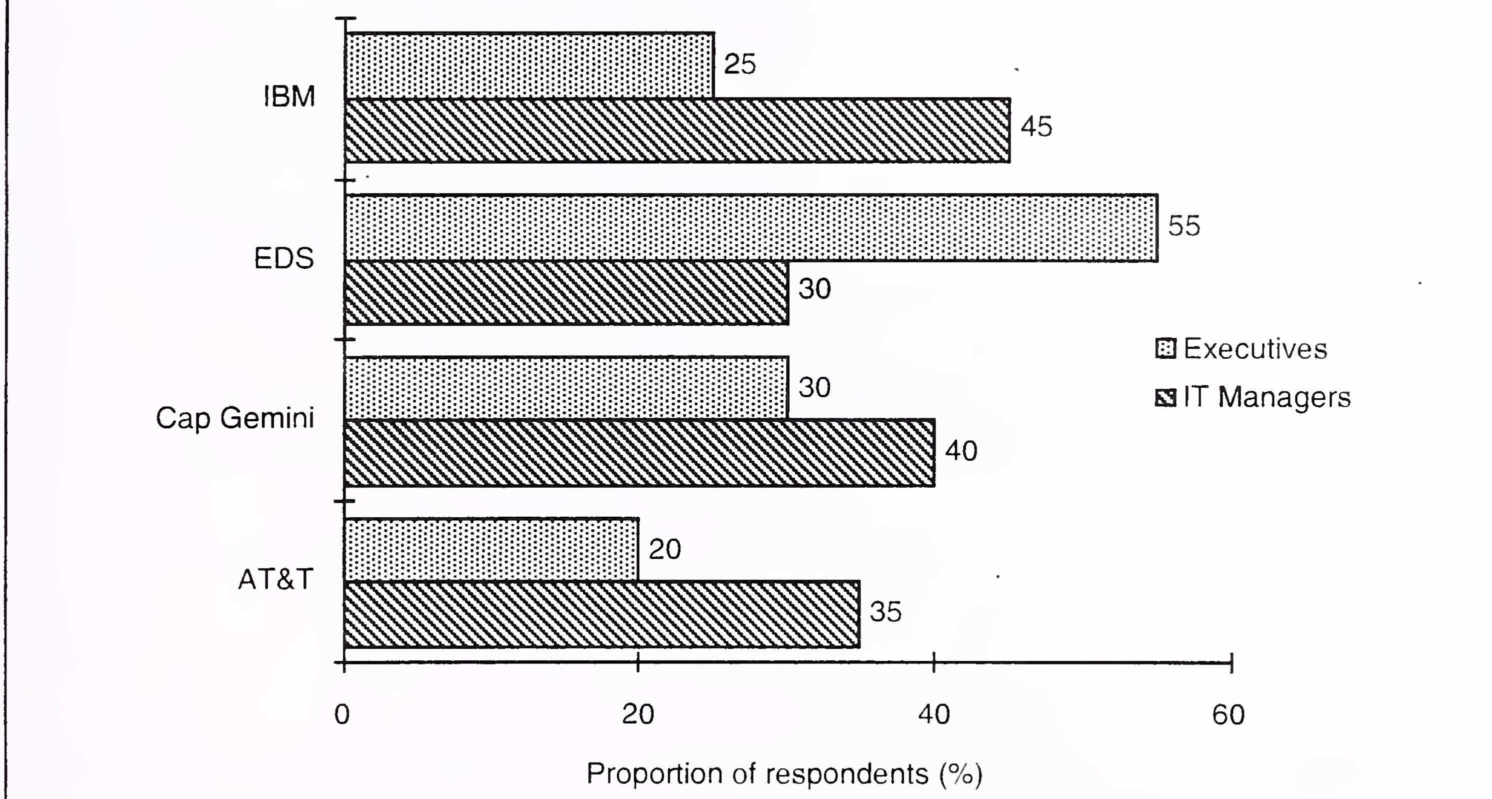
Also there are considerable differences in the perceptions of vendor suitability from country to country. The four vendors perceived to be most suitable — EDS, IBM, Cap Gemini Sogeti and AT&T — were comparatively highly ranked in more than one country. For example, EDS was the only vendor to be ranked in the top three places in all three countries, and IBM was highly ranked in Germany and the UK.

The national carriers clearly face a major challenge. Neither BT nor Deutsche Bundespost Telekom were ranked among the top three suppliers in their own national markets, and while France Télécom was ranked ahead of all the other vendors in France, it was ranked in last place in Germany and the UK.

Exhibit IV-13 shows the main differences in attitudes between IT managers and senior executives.

Exhibit V-13

Perceived Vendor Suitability: Europe
IT Manager vs. Executive Perspective



Sample of 88 respondents. Standard error = 8%

Source: INPUT

IT managers tend to favour IBM, Cap Gemini Sogeti and AT&T while senior executives strongly favour EDS with IBM and Cap Gemini Sogeti favoured by a smaller proportion of respondents.

Exhibit V-14 lists the vendors most frequently mentioned as appropriate suppliers of WAN outsourcing in Germany.

Exhibit V-14

Principal Vendors Mentioned: Germany

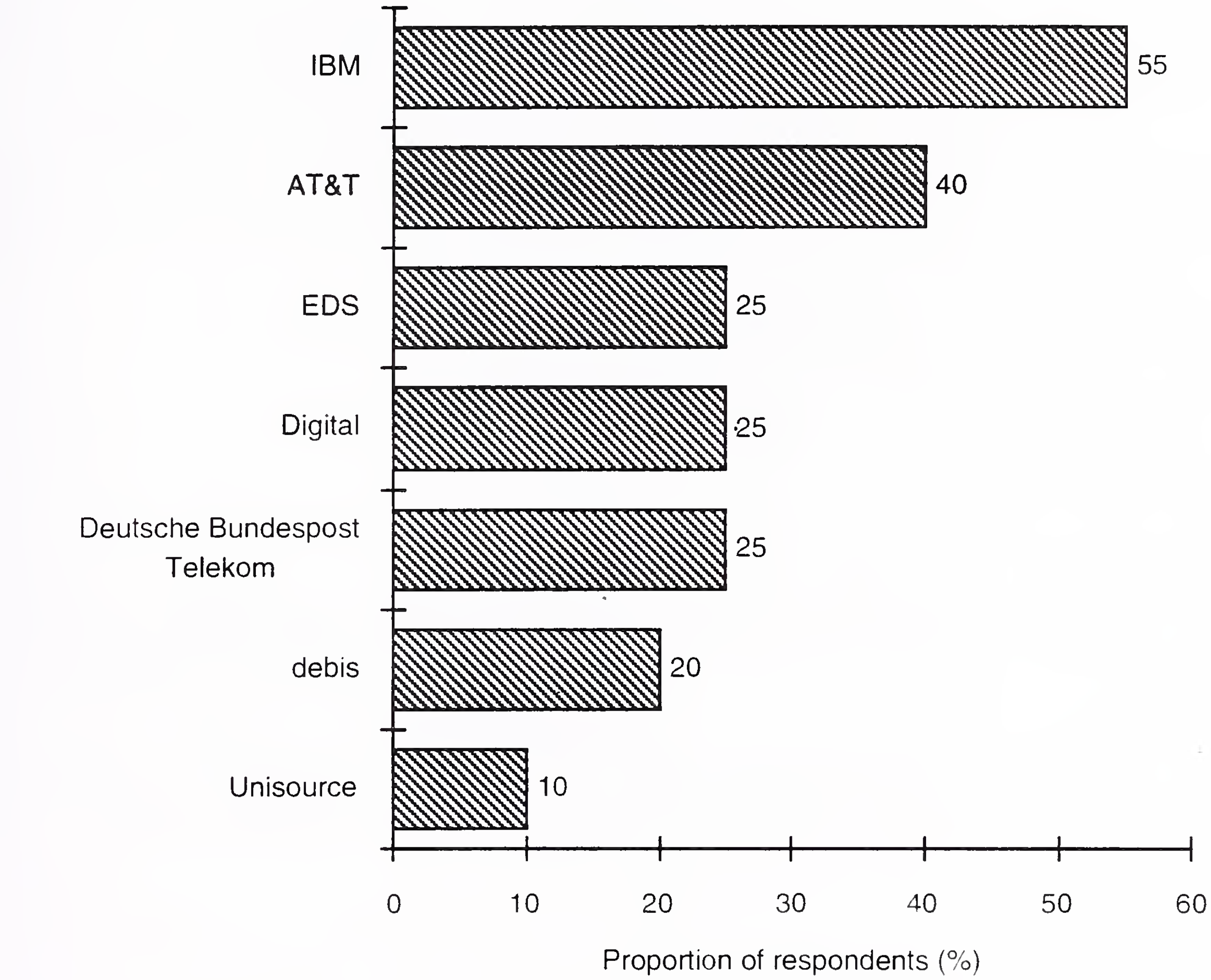
Vendor	Number of mentions
IBM	12
Digital	5
debis	3
Deutsche Telekom	3
AT&T	2
EDS	2
SNI	2

Source: INPUT

Exhibit V-15 lists the proportions of respondents in Germany that perceived each of the named vendors to be highly suitable as a supplier of WAN outsourcing services.

Exhibit V-15

Perceived Vendor Suitability: Germany



Sample of 30 respondents. Standard error = 8% *Source: INPUT*

IBM received its best rating in Germany, where a narrow majority of respondents perceived IBM to be a suitable supplier of WAN outsourcing services. Overall the ratings are quite low, indicating that considerable progress needs to made by the vendors before they are perceived to have high levels of WAN outsourcing capability.

Digital also received its highest rating in Germany.

On the other hand. EDS received its lowest rating as a supplier of WAN outsourcing services in Germany, and a lower proportion of respondents perceived debis to be a highly suitable supplier in Germany, in comparison with Hoskyns in the UK and Cap Gemini in France.

Exhibit V-16 lists the vendors most frequently mentioned as appropriate suppliers of WAN outsourcing in France.

Exhibit V-16

Principal Vendors Mentioned: France

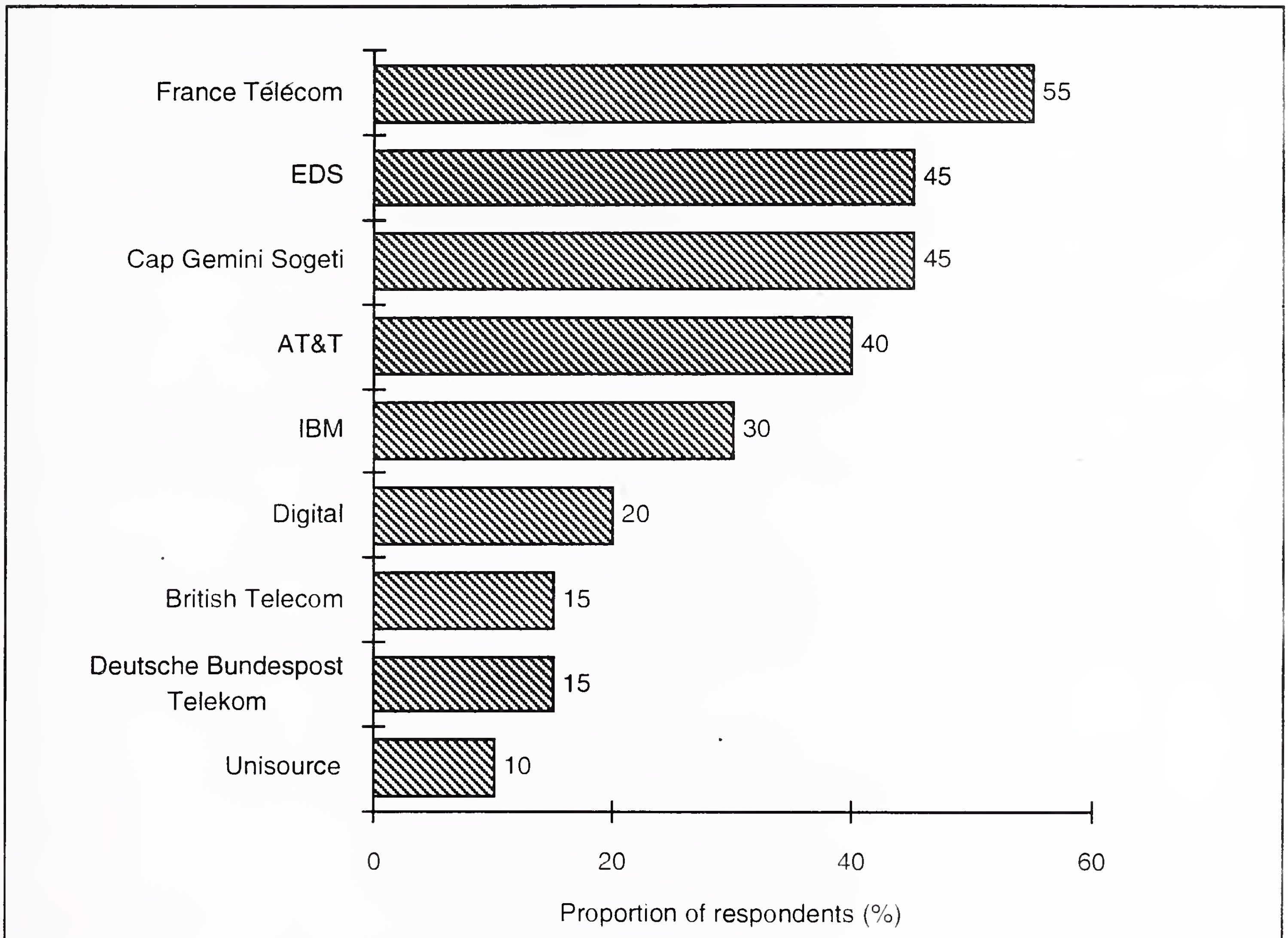
Vendor	Number of mentions
EDS	8
Bull	5
Axone	4
Cap Gemini Sogeti	4
France Télécom	4
CSC	2
GSI	2

Source: INPUT

Exhibit V-17 lists the proportions of respondents in France that perceived each of the named vendors to be highly suitable as a supplier of WAN outsourcing services.

Exhibit V-17

Perceived Vendor Suitability: France



Sample of 28 respondents. Standard error = 8%

Source: INPUT

France Télécom achieved the unique claim to fame of being the only national carrier in the three major countries to be regarded as the most appropriate vendor for the provision of WAN outsourcing services within its own national market. However, like the other national carriers, Deutsche Bundespost Telekom and BT, the opinion of France Télécom's WAN outsourcing prowess remains low outside its own country. None of the respondents in Germany or the UK regarded France Télécom as being a potentially highly suitable provider of WAN outsourcing services.

EDS also received its highest rating in France.

Perhaps surprisingly, while Axone has been very successful in the French IT outsourcing market, the company was not particularly highly regarded as a potential supplier of WAN outsourcing services. Axone was rated in fifth place amongst the nine vendors evaluated, the lowest ranking for IBM in any of the three major countries. This is partly due to other vendors receiving relatively high ratings in France compared to their European averages. Overall, the ratings in France are higher than in Germany or the UK, reflecting a more positive attitude overall towards wide area network outsourcing.

Exhibit V-18 lists the vendors most frequently mentioned as appropriate suppliers of WAN outsourcing in the UK.

Exhibit V-18

Principal Vendors Mentioned: UK

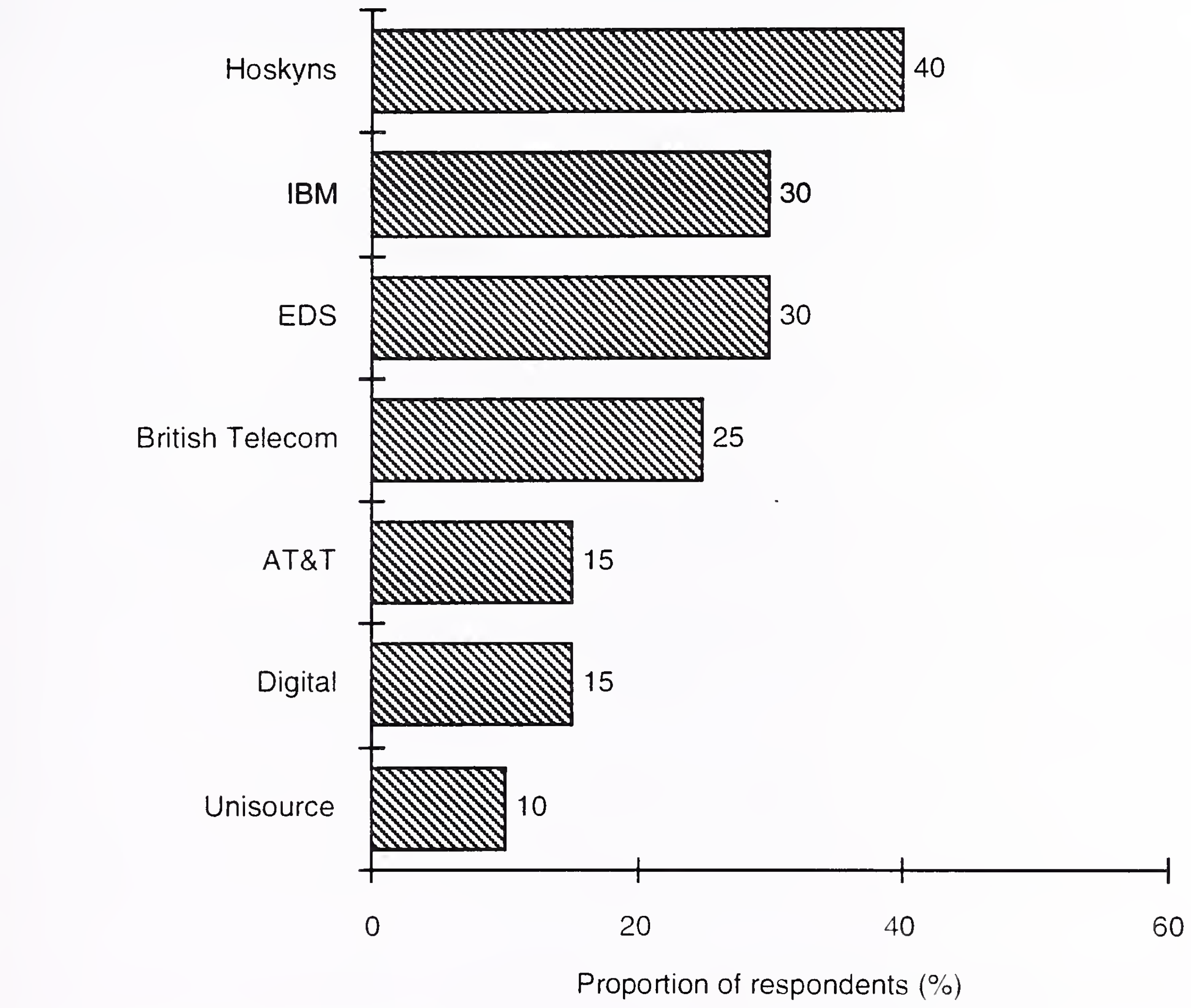
Vendor	Number of mentions
IBM	6
BT	5
CFM	5
Hoskyns	5
EDS	3
Hewlett-Packard	3
Data Sciences	2

Source: INPUT

Exhibit V-19 lists the proportions of respondents in the UK that perceived each of the named vendors to be highly suitable as a supplier of WAN outsourcing services.

Exhibit V-19

Perceived Vendor Suitability: UK



Sample of 30 respondents. Standard error = 8%

Source: INPUT

The two companies that tend to head any rankings of outsourcing capability in the UK namely: Hoskyns and EDS, were perceived to be the most suitable vendors for wide area network outsourcing services, despite their apparent lack of capability in this area. These two companies were joined by IBM. IBM appears to be relatively more highly regarded for its wide area network outsourcing capability than its general IT outsourcing capability in the UK.

Overall the wide area network specialists, including AT&T, and BT, appear to lack widespread support for their outsourcing capability in the UK. Indeed, the proportion of respondents who perceived AT&T to be highly suitable as a supplier of WAN outsourcing services was significantly lower in the UK than in France or Germany.

In addition, BT's low rating in the UK should be a concern for the company given the company's development of service offerings for WAN outsourcing. There is currently a marked contrast between France Télécom's comparatively favourable level of awareness and perceived capability in France compared to BT's in the UK.

A

User Questionnaire

Future Network Development

1. What are the principal challenges facing your organisation's use of wide area networks over the next few years?

2. How important are each of the following needs?
(Please rate on a scale of 1–5 where 1 = irrelevant and 5 = very important).

Increased coverage of end-user population	____
Increased geographic flexibility	____
Higher bandwidth	____
Need to combine voice, data and image	____
Improved interconnection of workgroups	____

3. How do you expect your wide area network to change over the next three years?

4. What impact will changing business needs have on your wide area network over the next three years?

5. What impact will changing technology have on your wide area network over the next three years?

6. Which new WAN or LAN technologies do you expect to adopt over the next three years?

Quality of Current Network

7. Which aspects of your use of wide area networks are you particularly pleased with?

8. Which aspects of your use of wide area networks do you think will have to be improved over the next years?

9. How satisfactory is your present wide area network's ability to support changing business needs in terms of its:
(Please rate on a scale of 1–5 where 1 = unsatisfactory and 5 = very satisfactory)

response times ——

reliability ——

security ——

resilience to failure ——

throughput ——

ability to meet future business needs ——

ability to respond to technological change ——

flexibility to support new business processes ——

flexibility to adapt to changing organisational structures ——

suitability to support a client/server infrastructure ——

cost-effectiveness ——

10. How important over the next three years is it for your wide area network to:
(Please rate on a scale of 1-5 where 1 = unimportant and 5 = very important).

support your company's international activities ——

support your company's national activities ——

support E-mail ——

support inter-LAN connections ——

support voice ——

support images ——

support data ——

support client/server architecture ——

be cost-effective ——

11. How satisfactory is your present wide area network in terms of its ability to:
(Please rate on a scale of 1-5 where 1 = unsatisfactory and 5 = very satisfactory).

support your company's international activities ——

support your company's national activities ——

support the full range of technologies required ——

support E-mail ——
support inter-LAN connections ——
support voice ——
support images ——
support data ——
support client/server architecture ——
be cost-effective ——

Network Support Requirement

12. What impact do you think the changes discussed earlier will have on your in-house ability to develop and support the wide area network to meet future needs?

13. Which activities related to your wide area network do you expect to subcontract over the next three years?

14. How important do you believe it is that each of the following activities is carried out in-house?
(Please rate on a scale of 1-5 where 1 = unimportant and 5 = very important).

WAN strategy ——
WAN design ——
WAN implementation ——
WAN operation ——
WAN day-to-day management ——
WAN maintenance ——
Service supplier management ——

Attitude to outsourcing

15. What contribution do you believe outsourcing your wide area network would make to your business?

16. To what extent do you believe outsourcing your wide area network would:
(Please rate on a scale of 1-5 where 1 = none and 5 = very considerable).

Reduce running costs ——
Improve its ability to respond to changing business needs ——
Improve the speed of response to changing business needs ——
Improve its ability to utilise new technologies ——

Improve its geographic coverage ____

Improve its resilience ____

Improve performance/throughput ____

Contribute to your organisation's competitive advantage ____

Contribute to your organisation's ability to offer services ____

17. Under what circumstances would you consider outsourcing your wide area network?

18. To what extent do you expect to outsource your WAN?
(Please rate on a scale of 1-5 where 1 = not at all and 5 = very probably).

Within three years ____

In combination with other IT functions ____

In isolation ____

19. Which vendors do you believe are best suited to WAN network outsourcing?

20. Why?

21. What are the key criteria that you would look for in a supplier of WAN outsourcing services?

22. How desirable are each of the following characteristics in a potential supplier of wide area network (WAN) network outsourcing?
(Please rate on a scale of 1-5 where 1 = not at all desirable and 5 = very desirable).

Pan-European network capability ____

Global network capability ____

National network capability ____

Data transmission capability ____

Voice transmission capability ____

Image transmission capability ____

Combined LAN/WAN operational management capability ____

Total IT infrastructure operational management capability ____

Ability to offer other IT infrastructure outsourcing services ____

23. To what extent would you favour each of the following types of vendor in selecting a supplier of WAN network outsourcing?
(Please rate on a scale of 1-5 where 1 = not at all and 5 = very considerably).

Vendor with total infrastructure support capability (i.e. mainframe, LAN, desktop and WAN) ——

One-stop outsourcing capability including business solutions ——

WAN outsourcing specialist ——

Consortium including specialist in WAN outsourcing ——

24. How suitable do you perceive each of the following vendors to be as potential suppliers of WAN network outsourcing?
(Please rate on a scale of 1-5 where 1 = none and 5 = very considerable).

France		**Germany**		**UK**	
	Rating		Rating		Rating
France Télécom		France Télécom		France Télécom	
Deutsche Telekom		Deutsche Telekom		Deutsche Telekom	
British Telecom		British Telecom		British Telecom	
AT&T		AT&T		AT&T	
IBM		IBM		IBM	
Digital		Digital		Digital	
Cap Gemini Sogeti		debis		Hoskyns	
EDS		EDS		EDS	
Unisource		Unisource		Unisource	

Thank you very much for your assistance

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